DSR-PDX10/PDX10P

RMT-811

SERVICE MANUAL

US Model
Canadian Model
DSR-PDX10

AEP Model
UK Model
E Model
DSR-PDX10P

Ver 1.8 2005. 11
Revision History

J MECHANISM

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	REPAIR PARTS LIST
DISASSEMBLY	SCHEMATIC DIAGRAMS	ADJUSTMENTS

- INSTRUCTION MANUAL is shown at the end of this document.

DVCAM™ DIGITAL CAMCORDER

SONY®

COVER

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system

Audio recording system
Rotary heads, PCM system
Quantization: Fs 32 kHz (12 bits, channels 1/2, channels 3/4), Fs 48 kHz (16 bits, channels 1/2)

Video signal
DSR-PDX10:
NTSC color, EIA standards
DSR-PDX10P:
PAL colour, CCIR standards

Usable cassette
Mini DVCAM cassette with the DVCAM mark printed
Mini DV cassette with the Mini DV mark printed

Tape speed
DVCAM format:
Approx. 28.218 mm/s
DV format SP mode:
Approx. 18.812 mm/s

Recording/playback time (using cassette PDVM-40ME)
DVCAM format: 40 min.
DV format SP mode: 1 hour

Fastforward/rewind time (using cassette PDVM-40ME)
When using the battery pack:
Approx. 2 min. and 30 seconds
When using the AC power adaptor:
Approx. 1 min. and 45 seconds

Viewfinder
Electric viewfinder (B&W)

Image device
3.8 mm (1/4.7 type) 3 CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective (still):
Approx. 1 000 000 pixels
Effective (moving):
Approx. 690 000 pixels

Lens
Combined power zoom lens
Filter diameter: 37 mm (1 1/2 in)
12× (Optical), 48× (Digital)
F 1.6 – 2.8

Focal length
3.6 – 43.2 mm (5/32 – 1 3/4 in.)
When converted to a 35 mm still camera
In CAMERA
4:3 mode :
49 – 588 mm (1 15/16 – 23 1/4 in.)
16:9 mode :
41 – 492 mm (1 5/8 – 19 3/8 in.)
In MEMORY
41 – 492 mm (1 5/8 – 19 3/8 in.)

Colour temperature
Auto, ☼Indoor (3 200 K), ☀Outdoor (5 800 K),

Minimum illumination
7 lx (lux) (F 1.6)

Input/Output connectors

S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
DSR-PDX10:
Chrominance signal: 0.286 Vp-p
75 Ω (ohms), unbalanced
DSR-PDX10P:
Chrominance signal: 0.3 Vp-p,
75 Ω (ohms), unbalanced

Audio/Video input/output
AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative
327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5 mm)
Input impedance more than 47 kΩ (kilohms)

DV input/output
4-pin connector

Headphone jack
Stereo minijack (ø 3.5 mm)

LANC jack
Stereo mini-minijack (ø 2.5 mm)

USB jack
mini-B

MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kΩ (kilohms) (ø 3.5 mm)
Stereo type

INPUT1/INPUT2 connectors
XLR 3-pin, female, –60 dBu:
3 kilohms, +4 dBu: 10 kilohms
(0 dBu = 0.775 Vrms)

LCD screen

Picture
8.8 cm (3.5 type)
72.2 × 50.4 mm (2 7/8 × 2 in.)

Total dot number
246 400 (1 120 × 220)

General

Peak inrush current
Hot switching inrush current, measured in accordance with European standard EN55103-1:
6.3 A (230 V)

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)

Average power consumption (when using the battery pack)
During camera recording using LCD
6.3 W
Viewfinder
5.0 W

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)

Dimensions (Approx.)
93 × 99 × 202 mm
(3 3/4 × 4 × 8 in.) (w/h/d)

Mass (Approx.)
950 g (2 lb 1 oz)
main unit only
1.4 kg (3 lb)
including the battery pack NP-FM50, the XLR adaptor, the Microphone, cassette PDVM-40ME, the lens cap and shoulder strap

Supplied accessories
See page 3.

AC power adaptor

Power requirements
100 – 240 V AC, 50/60 Hz

Power consumption
23 W

Output voltage
DC OUT: 8.4 V, 1.5 A in the operating mode

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)

Dimensions (approx.)
125 · 39 · 62 mm
(5 × 1 9/16 × 2 1/2 in.) (w/h/d)
excluding projecting parts

Mass (approx.)
280 g (9.8 oz)
excluding mains lead

Battery pack

Maximum output voltage
DC 8.4 V

Output voltage
DC 7.2 V

Capacity
8.5 Wh (1 180 mAh)

Dimensions (approx.)
38.2 × 20.5 × 55.6 mm
(1 9/16 × 13/16 × 2 1/4 in.)
(w/h/d)

Mass (approx.)
76 g (2.7 oz)

Type
Lithium ion

“Memory Stick”

Memory
Flash memory
8MB: MSA-8A

Operating voltage
2.7 – 3.6 V

Power consumption
Approx. 45 mA in the operating mode
Approx. 130 µA in the standby mode

Dimensions (approx.)
50 × 2.8 × 21.5 mm
(2 × 1/8 × 7/8 in.) (w/h/d)

Mass (approx.)
4 g (0.14 oz)

Design and specifications are subject to change without notice.

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY-RELATED COMPONENT WARNING!!

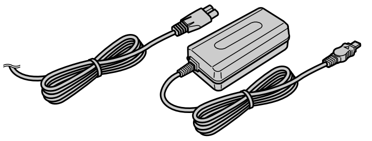
COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!**

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

• SUPPLIED ACCESSORIES

Make sure that the following accessories are supplied with your camcorder.

1


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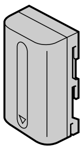

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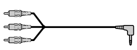

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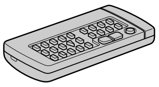

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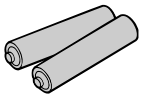

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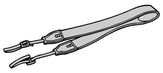

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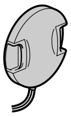

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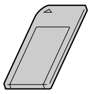

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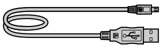

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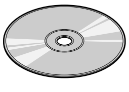

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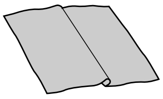

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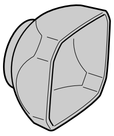

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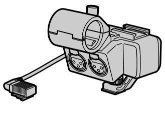

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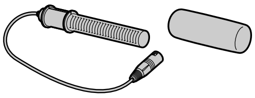

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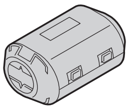

1. **AC-L10A/L10B/L10C AC power adaptor** (1), **mains lead** (1)
2. **NP-FM50 battery pack** (1)
3. **A/V connecting cable** (1)
4. **Wireless Remote Commander** (RMT-811)(1)
5. **R6 (Size AA) battery for Remote Commander** (2)
6. **Shoulder strap** (1)
7. **Lens cap** (1)
8. **"Memory Stick"** (1)
9. **USB cable** (1)
10. **CD-ROM (SPVD-008 USB Driver)** (1)(DSR-PDX10P)
    CD-ROM (SPVD-008 (I) USB Driver) (1)(DSR-PDX10)
11. **Cleaning cloth** (1)
12. **Wide lens hood** (1)
13. **XLR adaptor (with a Microphone holder)** (1)
14. **Microphone** (1)**, Wind screen** (1)
15. **Clamp filter** (1)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

LF : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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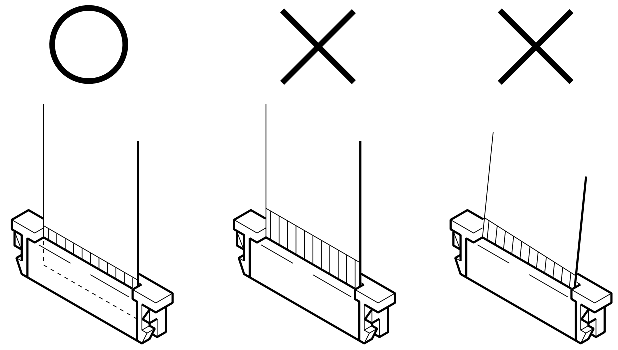
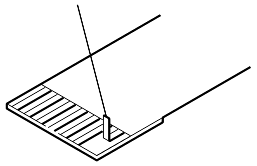
* Color reproduction frame is shown on page 323.

SECTION 1
SERVICE NOTE

1-1. NOTE FOR REPAIR

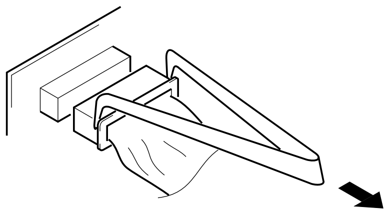
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



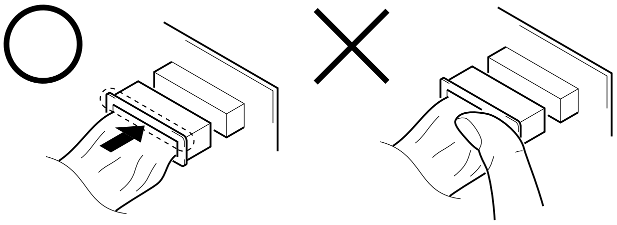


Cut and remove the part of gilt which comes off at the point. (Be careful or some pieces of gilt may be left inside)

When remove a connector, don't pull at wire of connector.
It is possible that a wire is snapped.



When installing a connector, don't press down at wire of connector.
It is possible that a wire is snapped.



1-2. POWER SUPPLY DURING REPAIRS

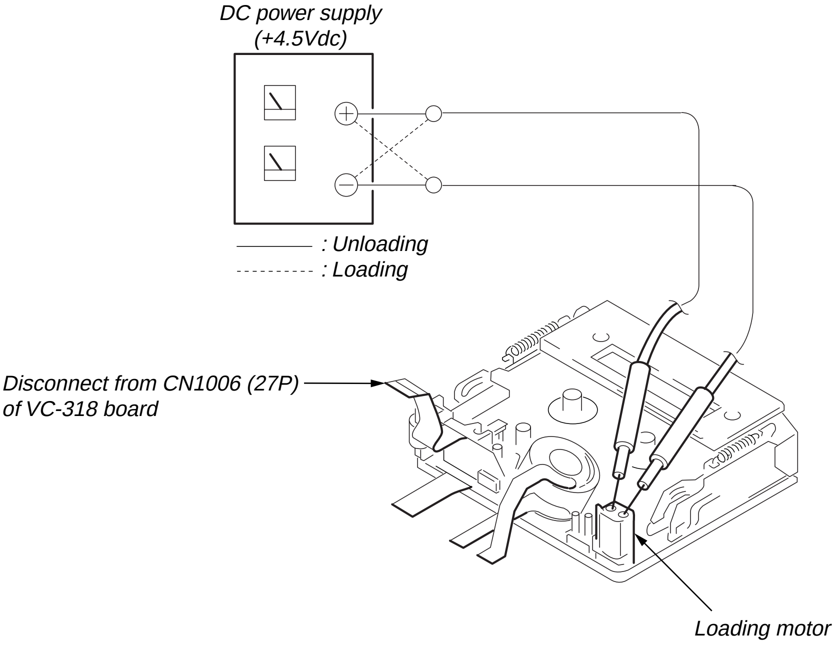
In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.
These following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.
Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

Method 2.
Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the commander switch to the “ADJ” side.

1-3. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to 2-2. to remove the cabinet (R) block assembly.
② Refer to 2-7. to remove the F panel block.
③ Refer to 2-11. to remove the battery panel block.
④ Refer to 2-21. to remove the CS frame block.
⑤ Refer to 2-12. to remove the DB-016 board.
⑥ Refer to 2-13. to remove the MD block.
⑦ Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.



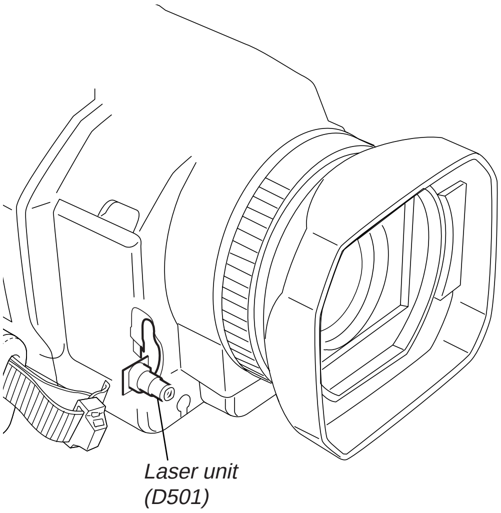
1-4. NOTES ON HANDLING THE LASER DIODE [LASER UNIT (D501)]

The laser diode may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

1-4-1. Soldering Conditions of Laser Unit (D501)

Temperature of the Soldering Iron	Less than 350 °C
Time to Solder	Within 3 seconds
Interval to Solder	Next terminal is soldered after waiting for 1 second

Note: Adjustment is needed when laser unit (D501) is replaced. Refer to “18. AF Laser Output Adjustment” and “19. AF Laser Axis Check” of “6-1. CAMERA SECTION ADJUSTMENT”.



1-5. SELF-DIAGNOSIS FUNCTION

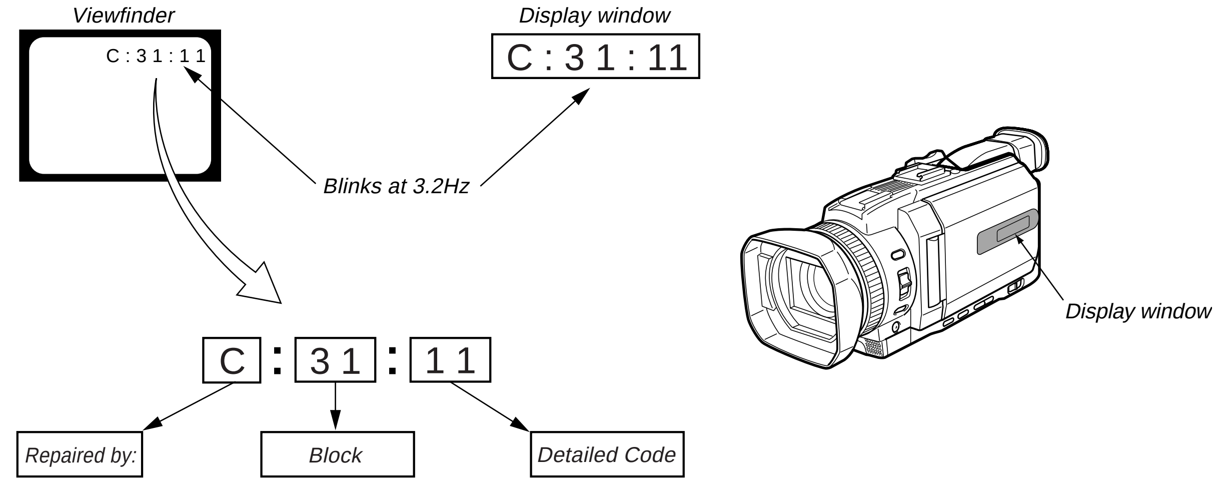
1-5-1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

1-5-2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.


Viewfinder
C : 3 1 : 1 1
Display window
C : 3 1 : 11
Blinks at 3.2Hz
Display window
C
3 1
1 1
Repaired by:
Block
Detailed Code

C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer

Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.

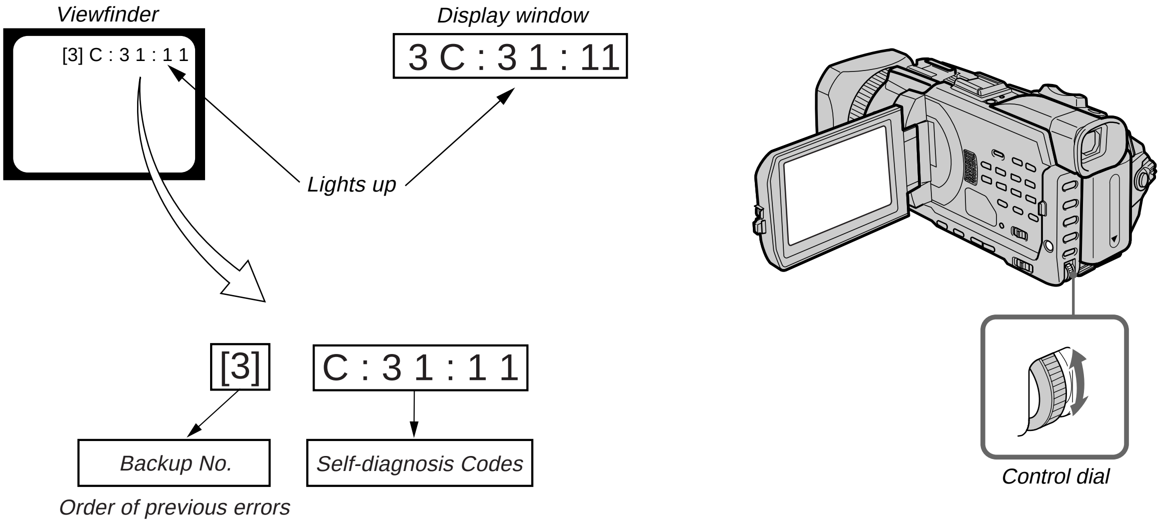
Refer to “1-5-4. Self-diagnosis Code Table”.

1-5-3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

1. Display Method

While pressing the “STOP” key, set the switch from OFF to “VCR”, and continue pressing the “STOP” key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.


Viewfinder
[3] C : 3 1 : 1 1
Display window
3 C : 3 1 : 11
Lights up
[3]
C : 3 1 : 1 1
Backup No.
Self-diagnosis Codes
Order of previous errors
Control dial

2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time
[2] : Occurred second time
[3] : Occurred third time
[4] : Occurred fourth time
[5] : Occurred fifth time
[6] : Occurred the last time

3. End of Display

Turning OFF the power supply will end the service mode display.

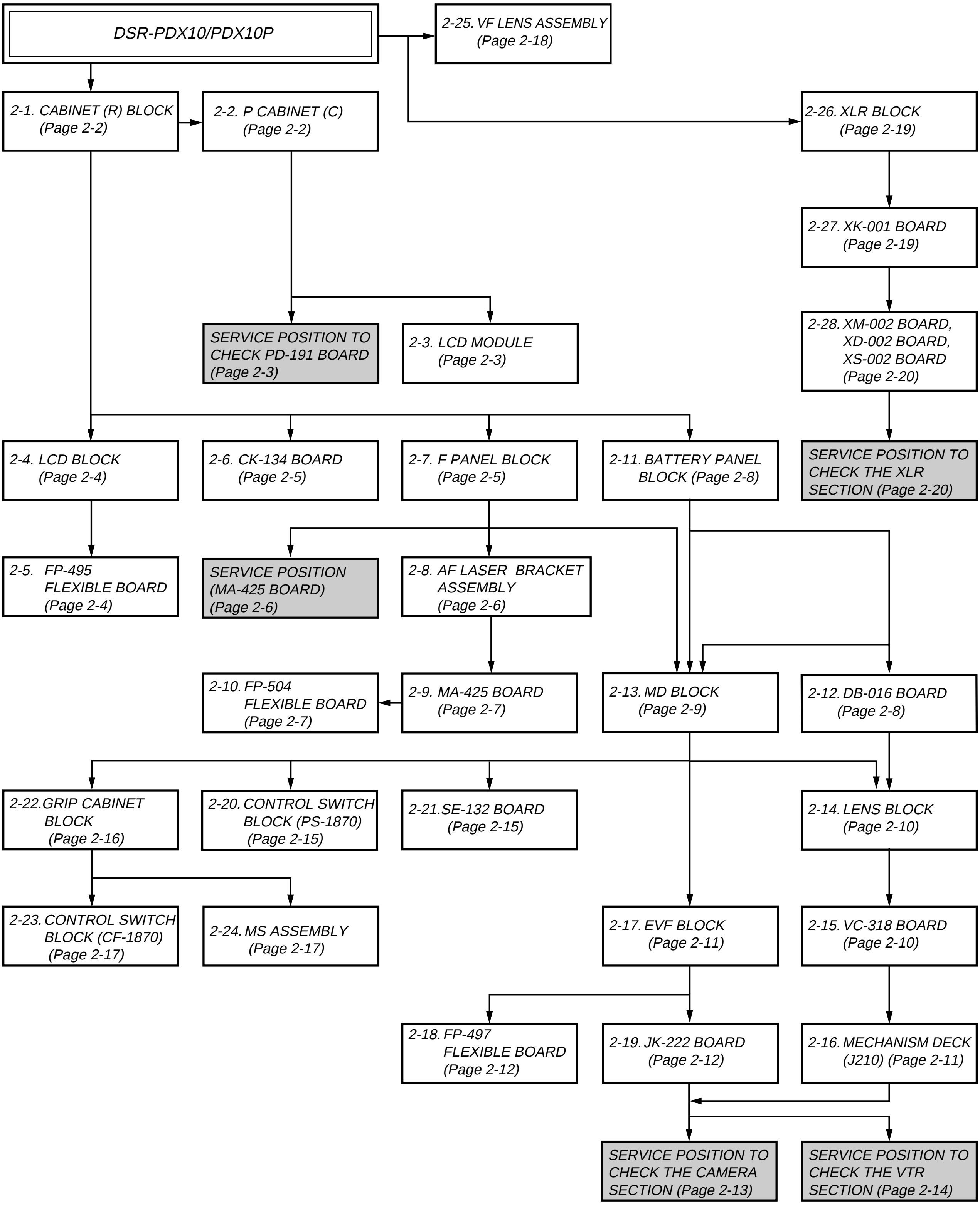
Note: The “self-diagnosis display” data will not be erased (reset) when the lithium 3 V supply (CK-134 board BT5201) is removed.

1-5-4. Self-diagnosis Code Table

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the info LITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	Winding S reel fault when counting the rest of tape.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 4	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	Winding S reel fault when counting the rest of tape.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 4	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations	Remove the battery or power cable, connect, and perform operations from the beginning.
E	2 0	0 0	EEPROM data error	Initialize A, D page data (EEPROM data).
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus MR (Pin ⑭, ⑮ of DB-016 board CN1004) when focusing is performed when the focus ring is rotated in the focus manual mode, and the focus motor drive circuit (IC3402 of DB-016 board) when the focusing is not performed.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom MR (Pin ⑩, ⑫ of DB-016 board CN1004) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC3402 of DB-016 board) when zooming is not performed.
E	6 2	0 0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE4001 of SE-132 board) peripheral circuits.
E	6 2	0 1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE4002 of SE-132 board) peripheral circuits.
E	9 1	0 1	Abnormality when flash is being charged.	Checking of flash unit or replacement of flash unit.

SECTION 2
DISASSEMBLY

The following flow chart shows the disassembly procedure.


DSR-PDX10/PDX10P
2-25. VF LENS ASSEMBLY (Page 2-18)
2-1. CABINET (R) BLOCK (Page 2-2)
2-2. P CABINET (C) (Page 2-2)
2-26. XLR BLOCK (Page 2-19)
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SERVICE POSITION TO CHECK PD-191 BOARD (Page 2-3)
2-3. LCD MODULE (Page 2-3)
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2-4. LCD BLOCK (Page 2-4)
2-6. CK-134 BOARD (Page 2-5)
2-7. F PANEL BLOCK (Page 2-5)
2-11. BATTERY PANEL BLOCK (Page 2-8)
SERVICE POSITION TO CHECK THE XLR SECTION (Page 2-20)
2-5. FP-495 FLEXIBLE BOARD (Page 2-4)
SERVICE POSITION (MA-425 BOARD) (Page 2-6)
2-8. AF LASER BRACKET ASSEMBLY (Page 2-6)
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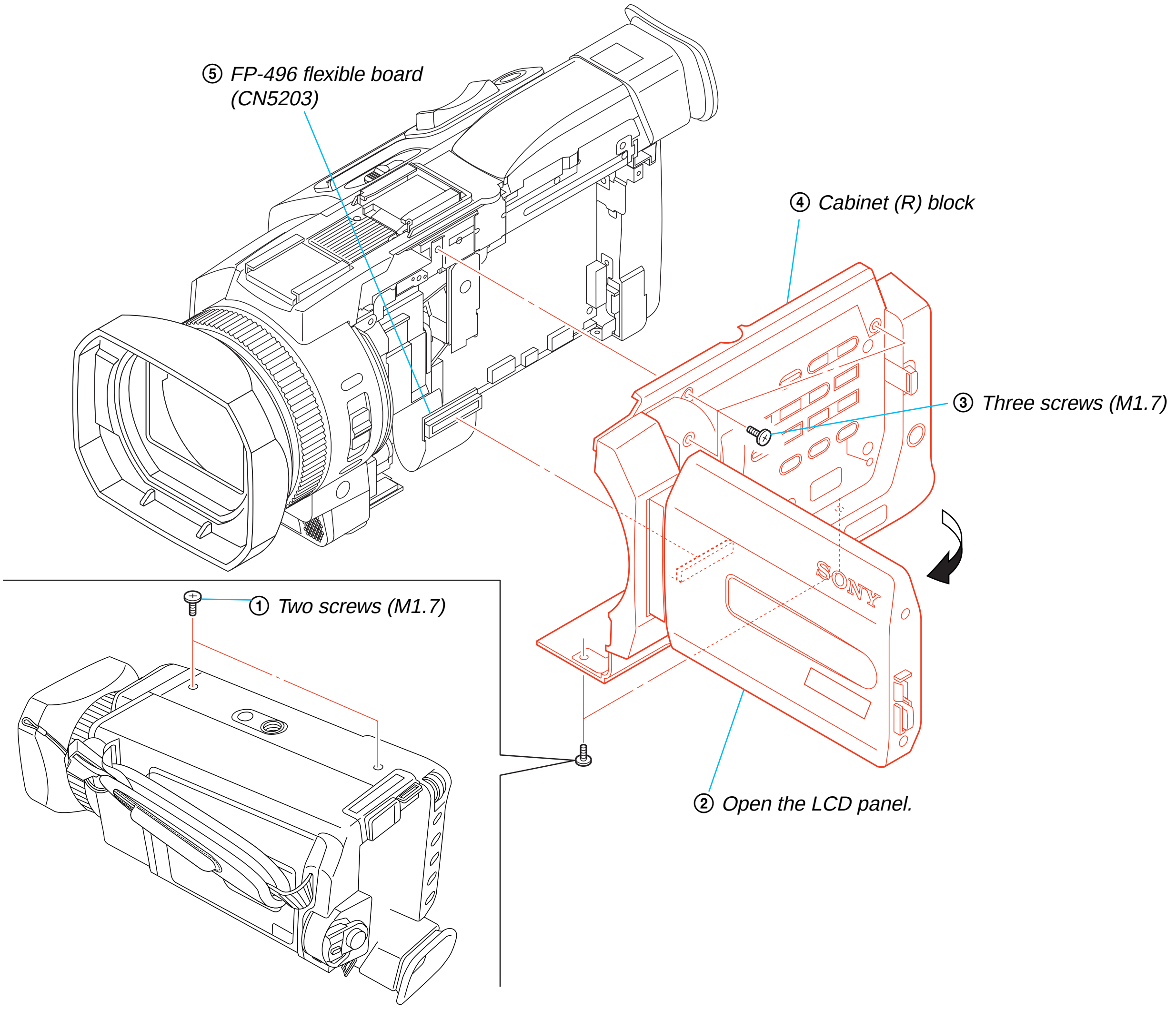
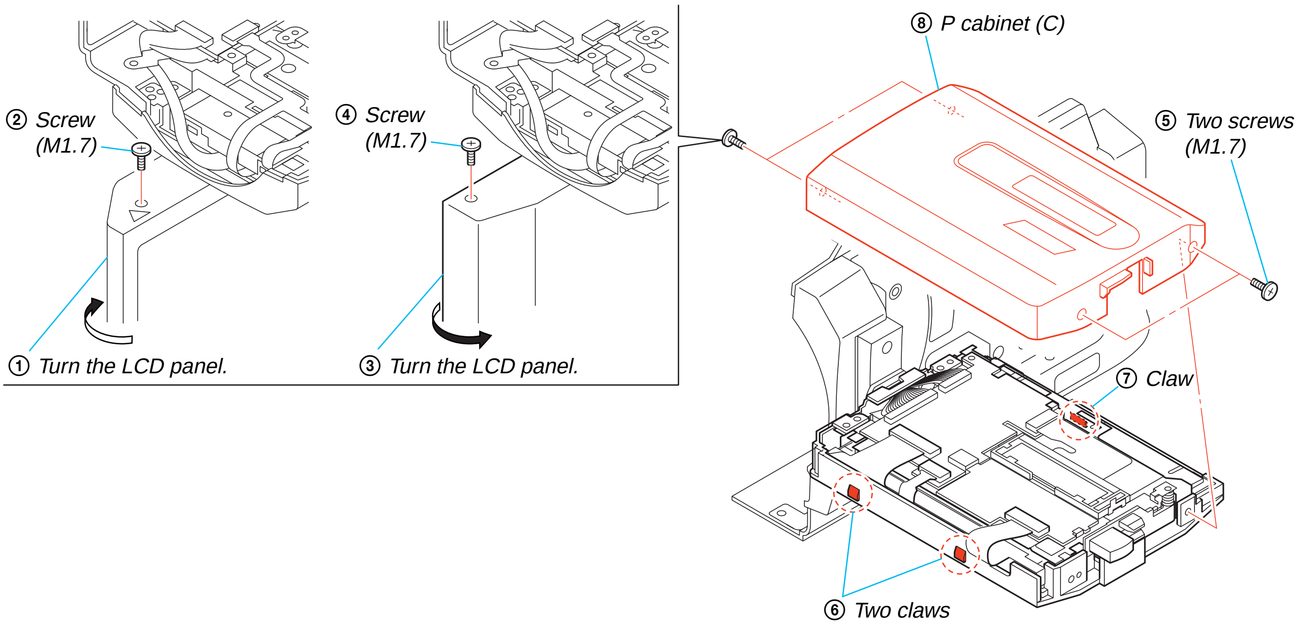
2-9. MA-425 BOARD (Page 2-7)
2-13. MD BLOCK (Page 2-9)
2-12. DB-016 BOARD (Page 2-8)
2-22. GRIP CABINET BLOCK (Page 2-16)
2-20. CONTROL SWITCH BLOCK (PS-1870) (Page 2-15)
2-21. SE-132 BOARD (Page 2-15)
2-14. LENS BLOCK (Page 2-10)
2-23. CONTROL SWITCH BLOCK (CF-1870) (Page 2-17)
2-24. MS ASSEMBLY (Page 2-17)
2-17. EVF BLOCK (Page 2-11)
2-15. VC-318 BOARD (Page 2-10)
2-18. FP-497 FLEXIBLE BOARD (Page 2-12)
2-19. JK-222 BOARD (Page 2-12)
2-16. MECHANISM DECK (J210) (Page 2-11)
SERVICE POSITION TO CHECK THE CAMERA SECTION (Page 2-13)
SERVICE POSITION TO CHECK THE VTR SECTION (Page 2-14)

NOTE: Follow the disassembly procedure in the numerical order given.

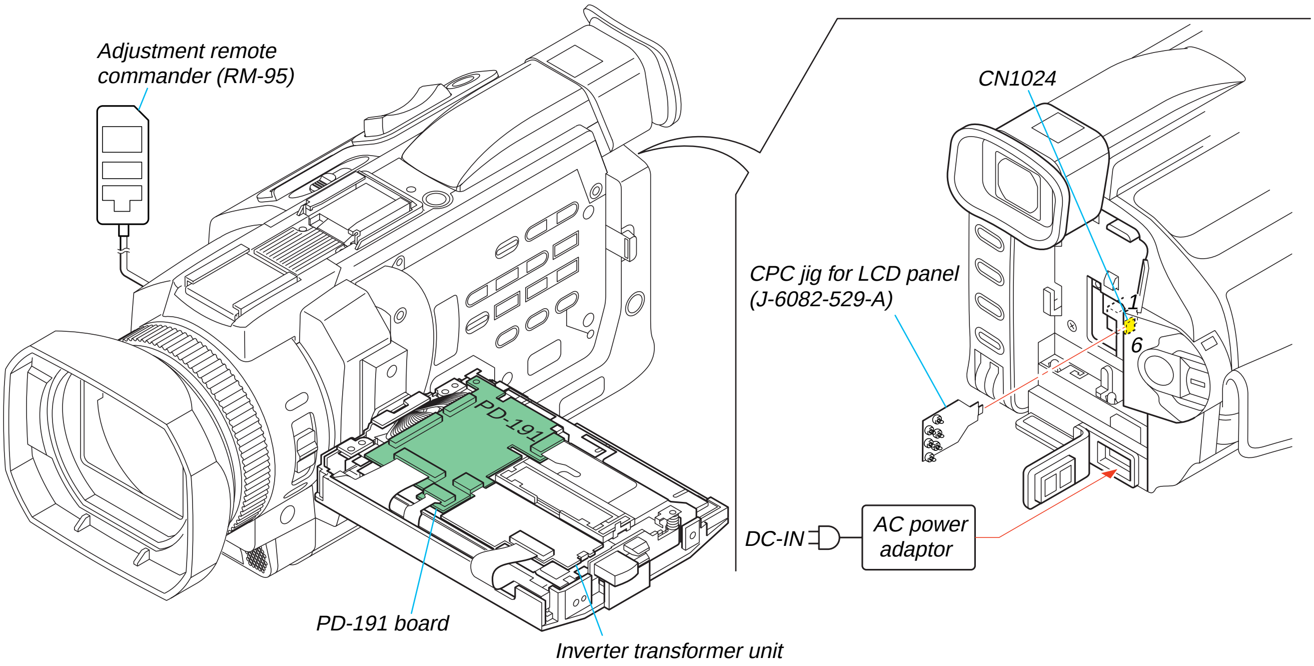
2-1. CABINET (R) BLOCK


⑤ FP-496 flexible board (CN5203)
④ Cabinet (R) block
③ Three screws (M1.7)
① Two screws (M1.7)
② Open the LCD panel.

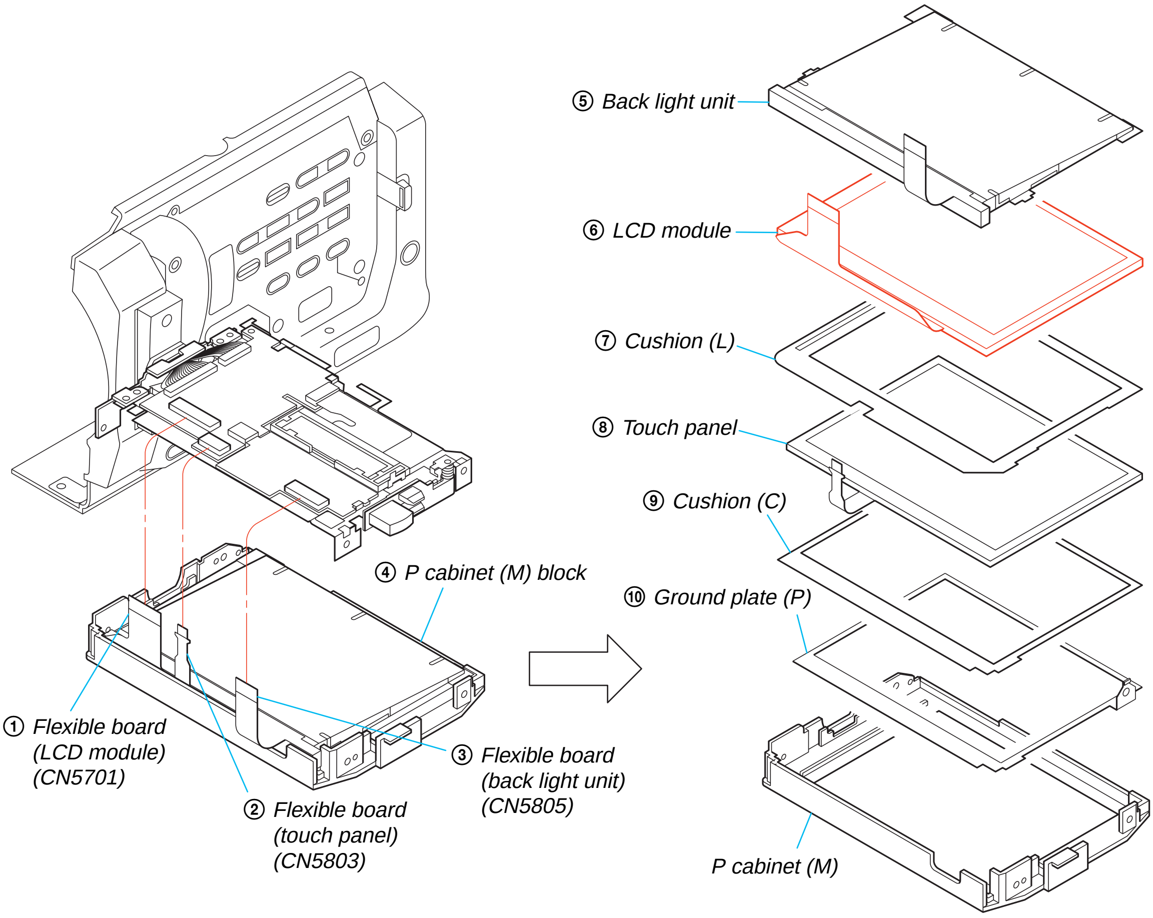
2-2. P CABINET (C)


② Screw (M1.7)
④ Screw (M1.7)
① Turn the LCD panel.
③ Turn the LCD panel.
⑧ P cabinet (C)
⑤ Two screws (M1.7)
⑦ Claw
⑥ Two claws

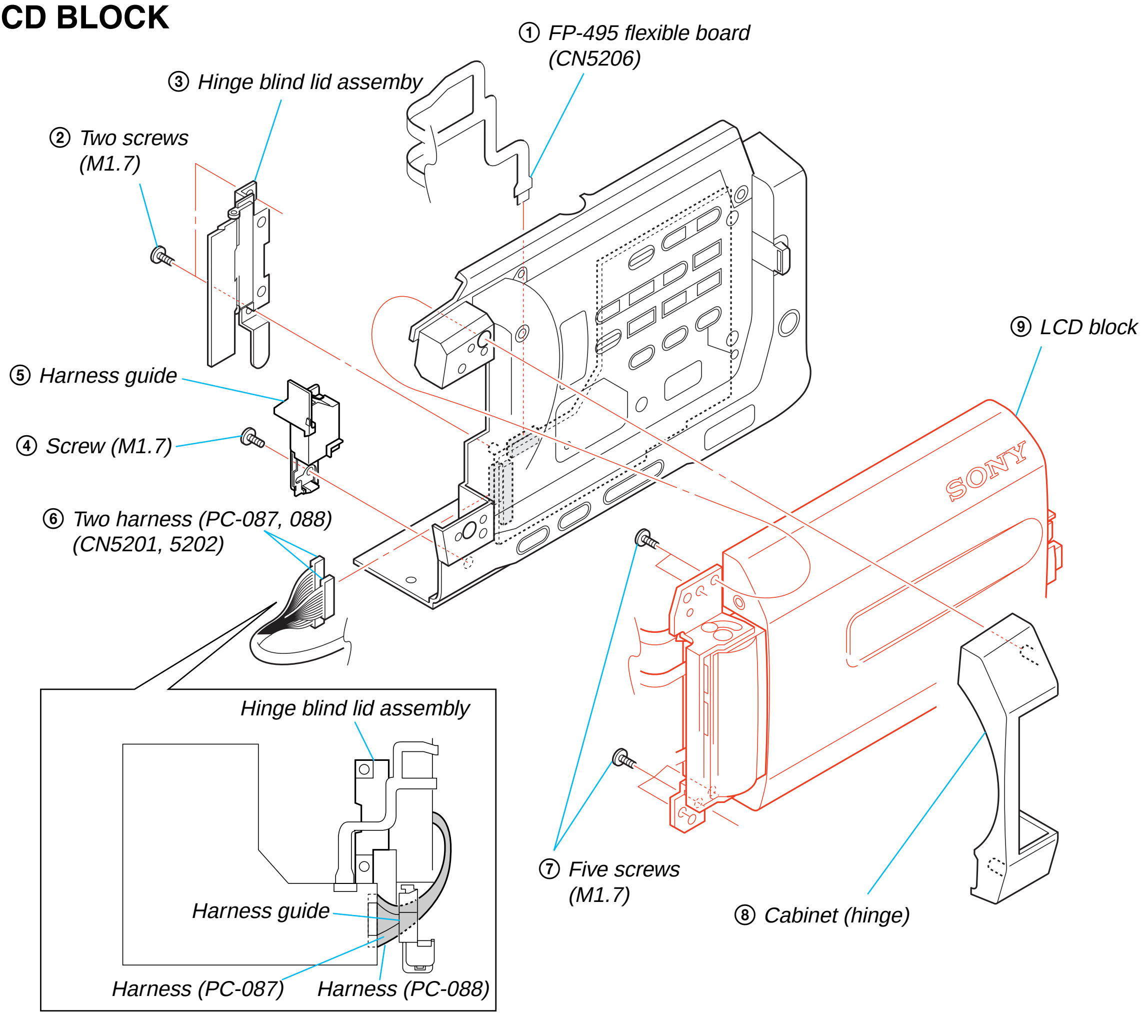
[SERVICE POSITION TO CHECK PD-191 BOARD]


Adjustment remote commander (RM-95)
PD-191
PD-191 board
Inverter transformer unit
CN1024
CPC jig for LCD panel (J-6082-529-A)
1
6
DC-IN
AC power adaptor

2-3. LCD MODULE


⑤ Back light unit
⑥ LCD module
⑦ Cushion (L)
⑧ Touch panel
⑨ Cushion (C)
⑩ Ground plate (P)
④ P cabinet (M) block
① Flexible board (LCD module) (CN5701)
② Flexible board (touch panel) (CN5803)
③ Flexible board (back light unit) (CN5805)
P cabinet (M)

2-4. LCD BLOCK

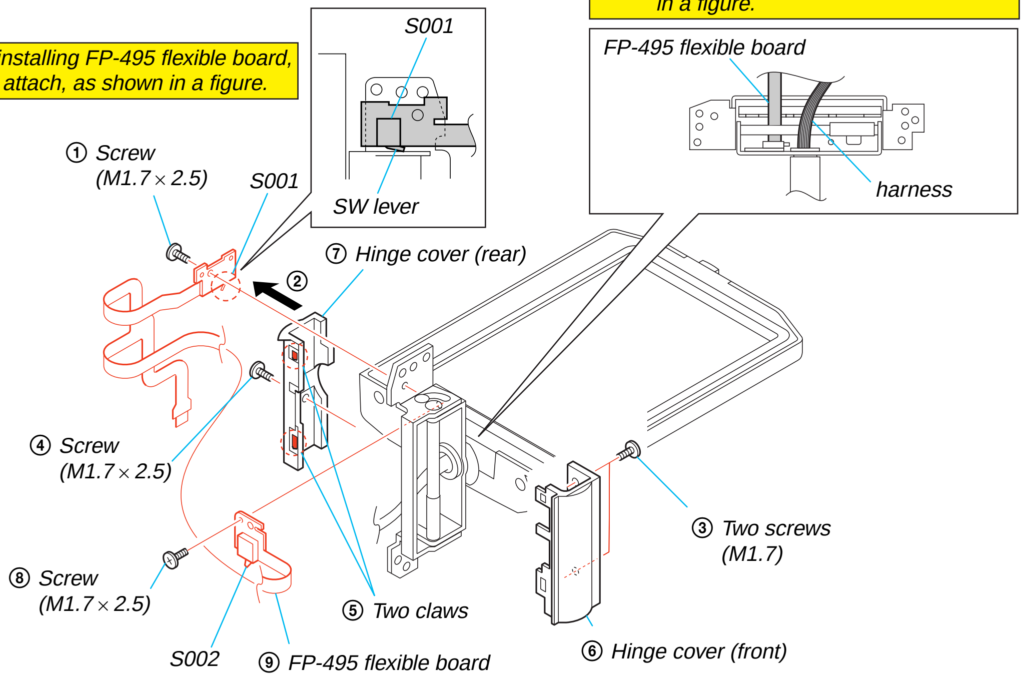

① FP-495 flexible board (CN5206)
③ Hinge blind lid assemby
② Two screws (M1.7)
⑤ Harness guide
④ Screw (M1.7)
⑥ Two harness (PC-087, 088) (CN5201, 5202)
⑨ LCD block
SONY
⑦ Five screws (M1.7)
⑧ Cabinet (hinge)
Hinge blind lid assembly
Harness guide
Harness (PC-087)
Harness (PC-088)

Note: *When installing Hinge blind lid assembly, please attach, as shown in a figure.*

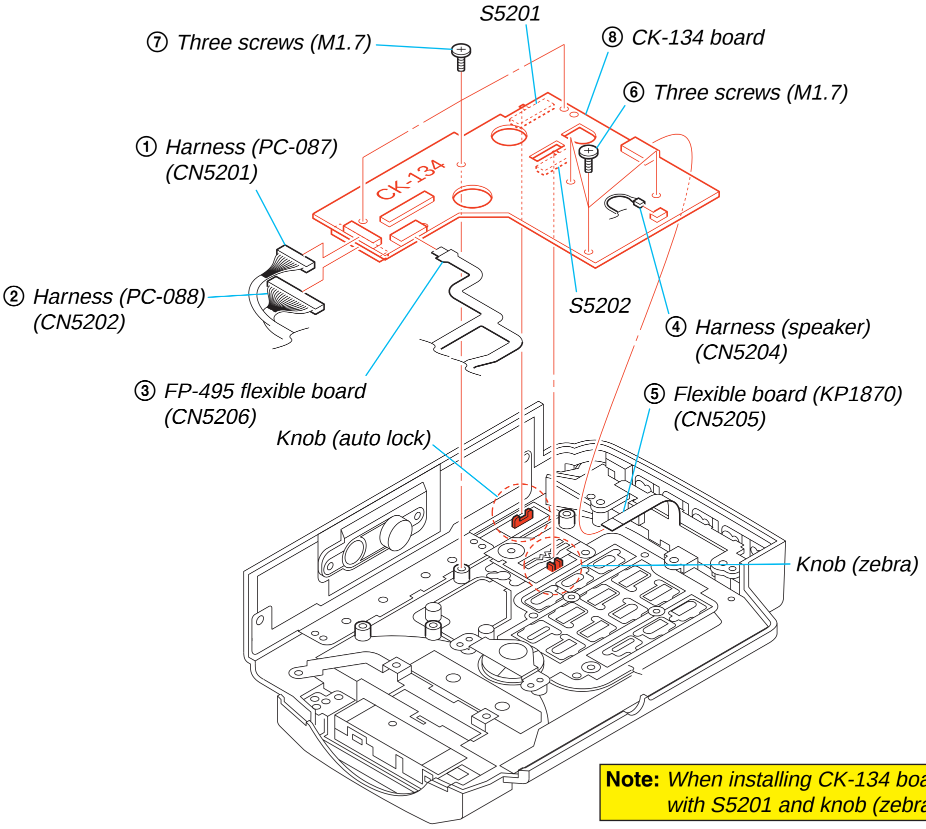
2-5. FP-495 FLEXIBLE BOARD

Note: *When installing FP-495 flexible board and harness, please attach, as shown in a figure.*

Note: *When installing FP-495 flexible board, please attach, as shown in a figure.*

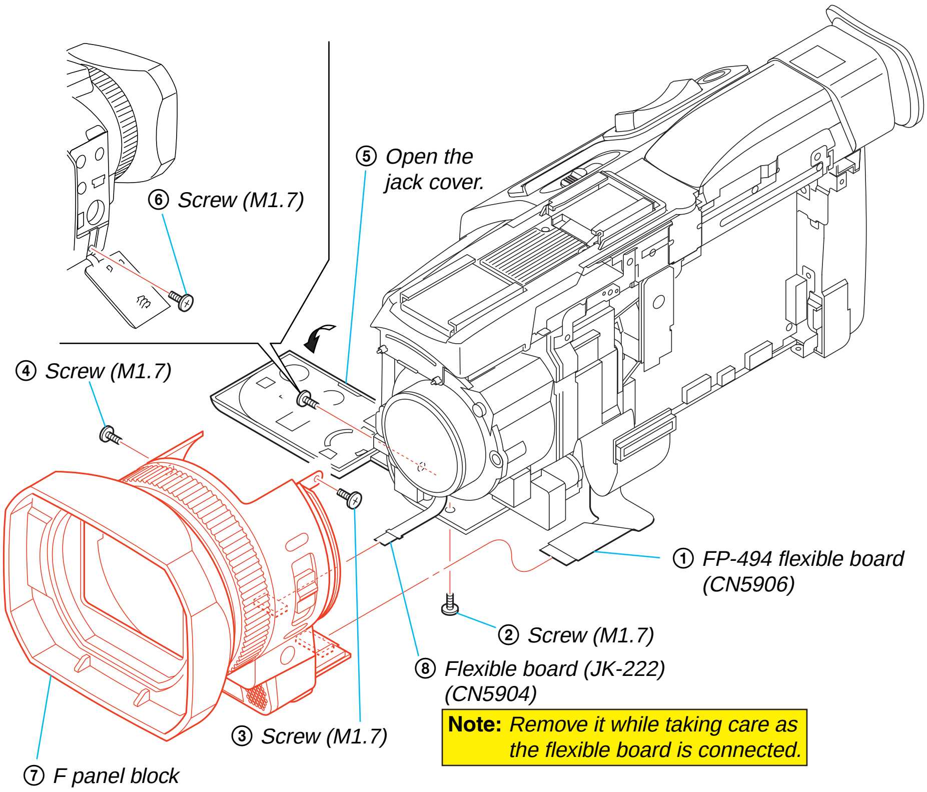

S001
SW lever
FP-495 flexible board
harness
① Screw (M1.7 × 2.5)
S001
②
⑦ Hinge cover (rear)
④ Screw (M1.7 × 2.5)
③ Two screws (M1.7)
⑧ Screw (M1.7 × 2.5)
⑤ Two claws
⑥ Hinge cover (front)
S002
⑨ FP-495 flexible board

2-6. CK-134 BOARD


S5201
⑦ Three screws (M1.7)
⑧ CK-134 board
⑥ Three screws (M1.7)
① Harness (PC-087) (CN5201)
CK-134
② Harness (PC-088) (CN5202)
S5202
④ Harness (speaker) (CN5204)
③ FP-495 flexible board (CN5206)
⑤ Flexible board (KP1870) (CN5205)
Knob (auto lock)
Knob (zebra)

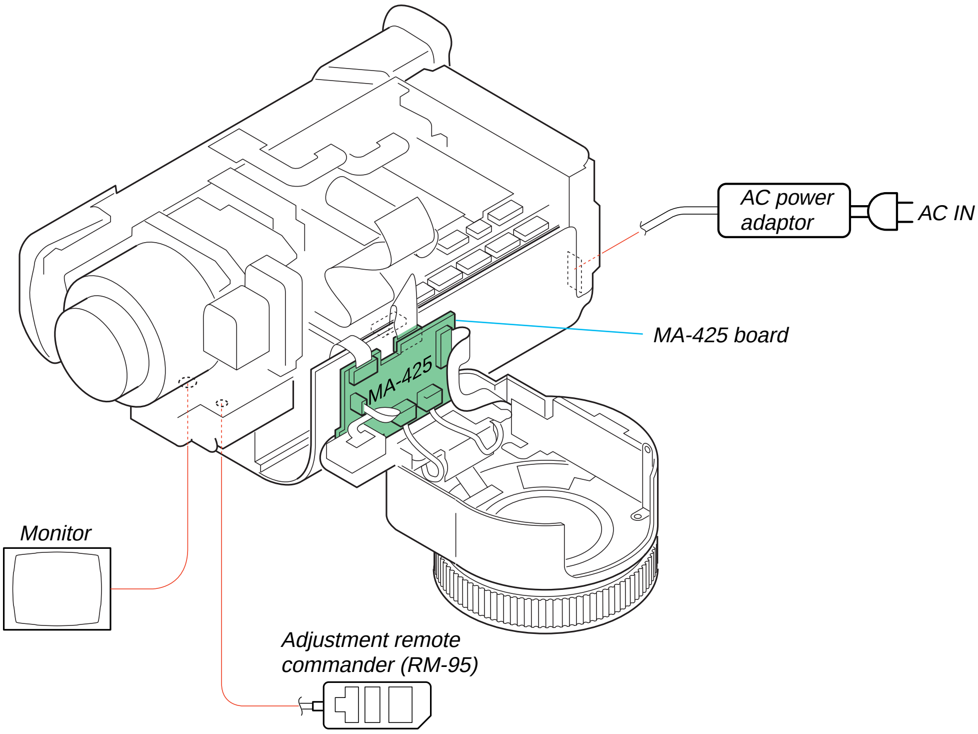
Note: *When installing CK-134 board, connect knob (auto lock) with S5201 and knob (zebra) with S5202.*

2-7. F PANEL BLOCK

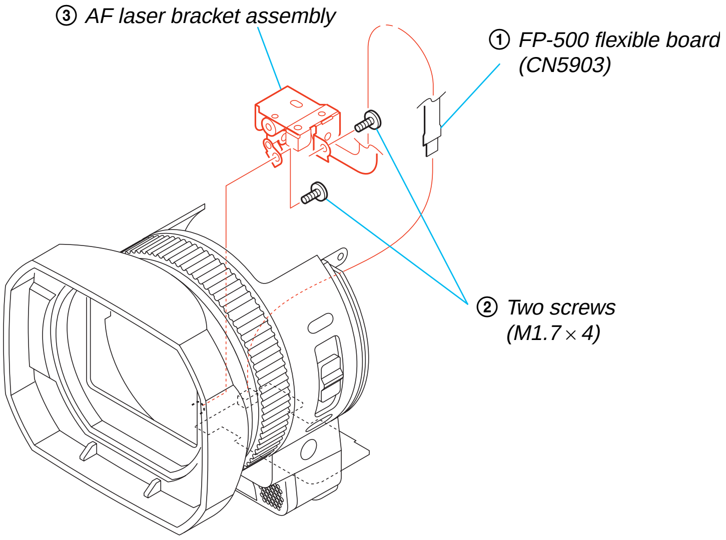

⑤ Open the jack cover.
⑥ Screw (M1.7)
④ Screw (M1.7)
① FP-494 flexible board (CN5906)
② Screw (M1.7)
⑧ Flexible board (JK-222) (CN5904)
③ Screw (M1.7)
⑦ F panel block

Note: *Remove it while taking care as the flexible board is connected.*

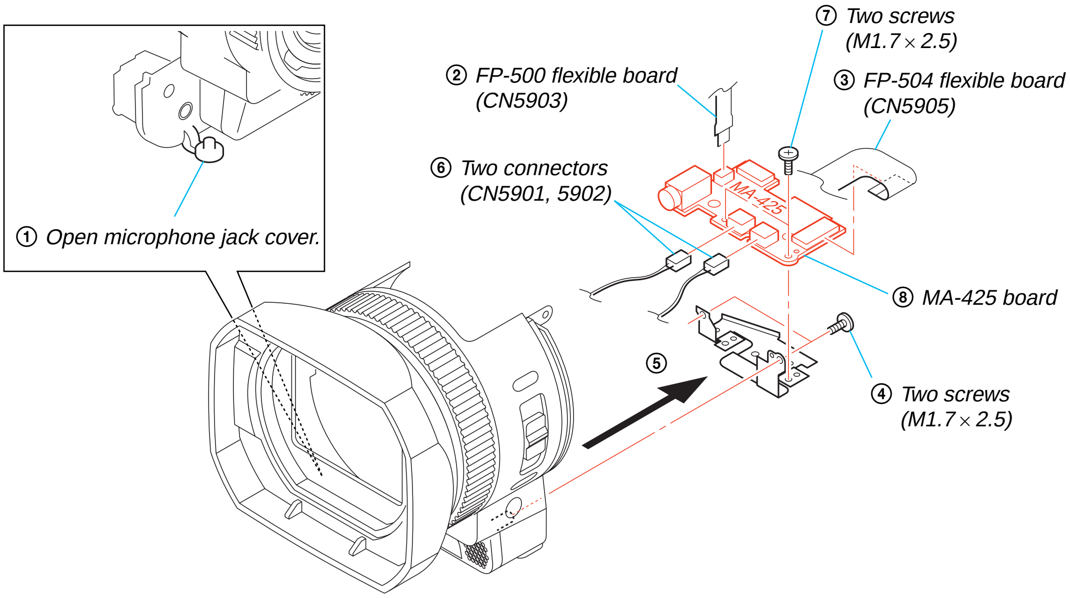
[SERVICE POSITION TO CHECK MA-425 BOARD]


AC power adaptor
AC IN
MA-425 board
MA-425
Monitor
Adjustment remote commander (RM-95)

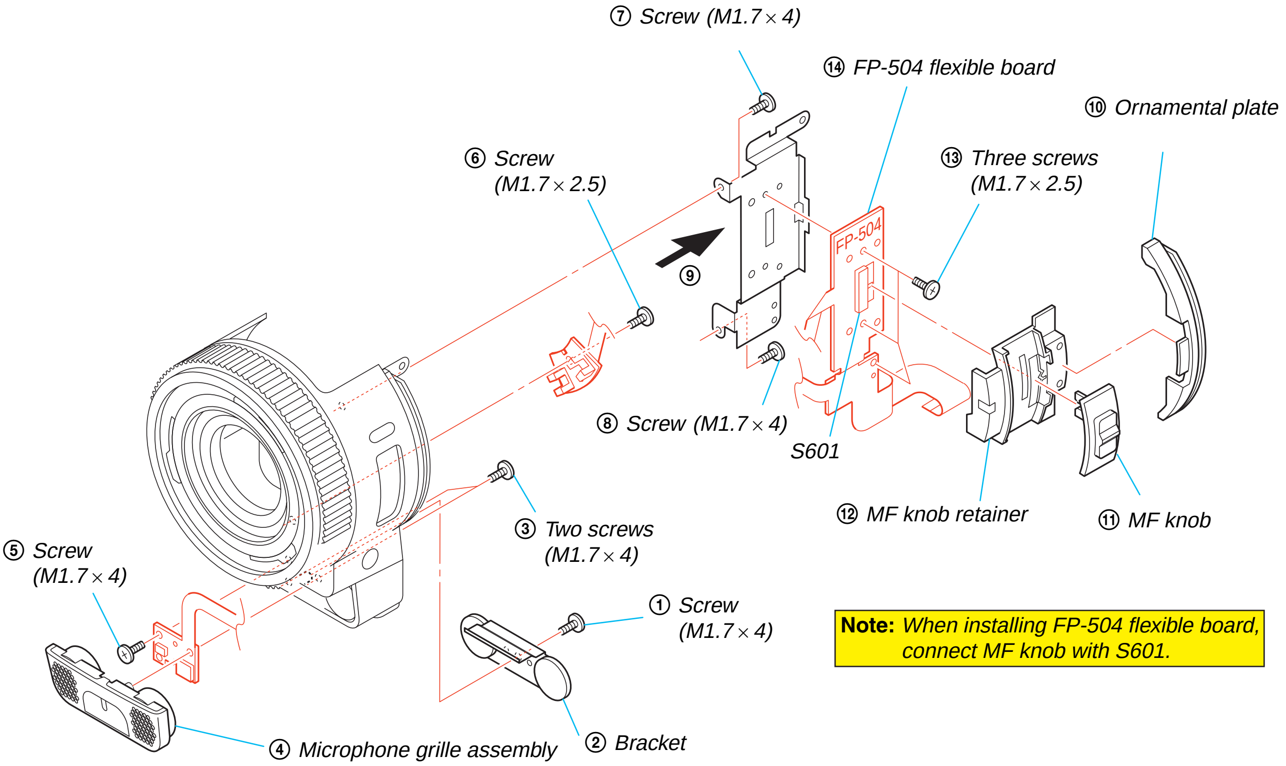
2-8. AF LASER BRACKET ASSEMBLY


③ AF laser bracket assembly
① FP-500 flexible board (CN5903)
② Two screws (M1.7 × 4)

2-9. MA-425 BOARD

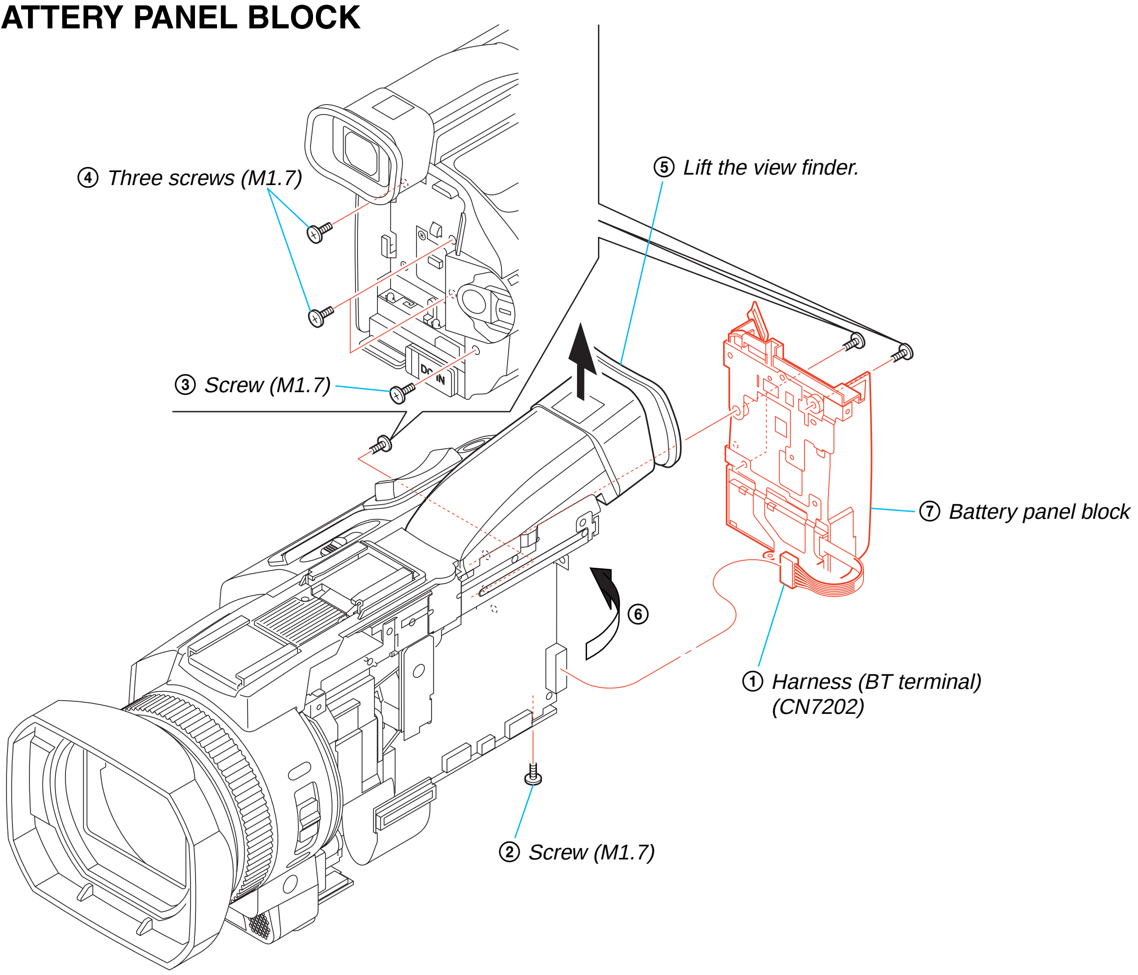

① Open microphone jack cover.
② FP-500 flexible board
(CN5903)
③ FP-504 flexible board
(CN5905)
④ Two screws
(M1.7 × 2.5)
⑤
⑥ Two connectors
(CN5901, 5902)
⑦ Two screws
(M1.7 × 2.5)
⑧ MA-425 board
MA-425

2-10. FP-504 FLEXIBLE BOARD

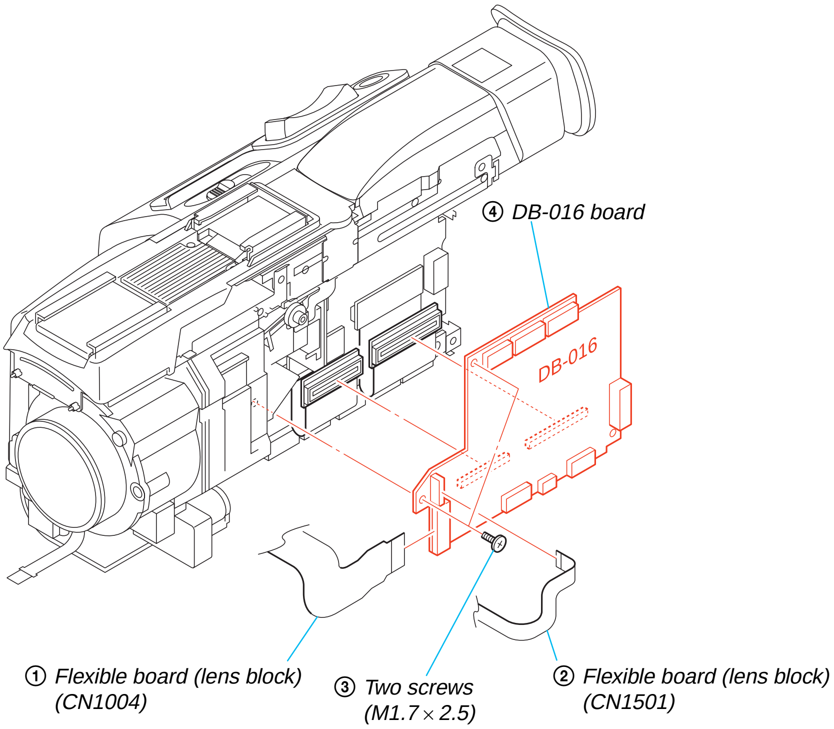

① Screw
(M1.7 × 4)
② Bracket
③ Two screws
(M1.7 × 4)
④ Microphone grille assembly
⑤ Screw
(M1.7 × 4)
⑥ Screw
(M1.7 × 2.5)
⑦ Screw (M1.7 × 4)
⑧ Screw (M1.7 × 4)
⑨
⑩ Ornamental plate
⑪ MF knob
⑫ MF knob retainer
⑬ Three screws
(M1.7 × 2.5)
⑭ FP-504 flexible board
FP-504
S601

Note: *When installing FP-504 flexible board, connect MF knob with S601.*

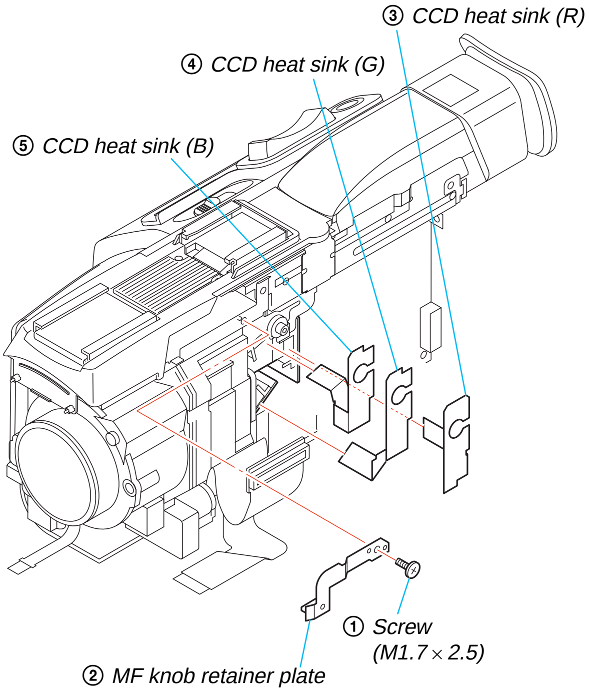
2-11. BATTERY PANEL BLOCK

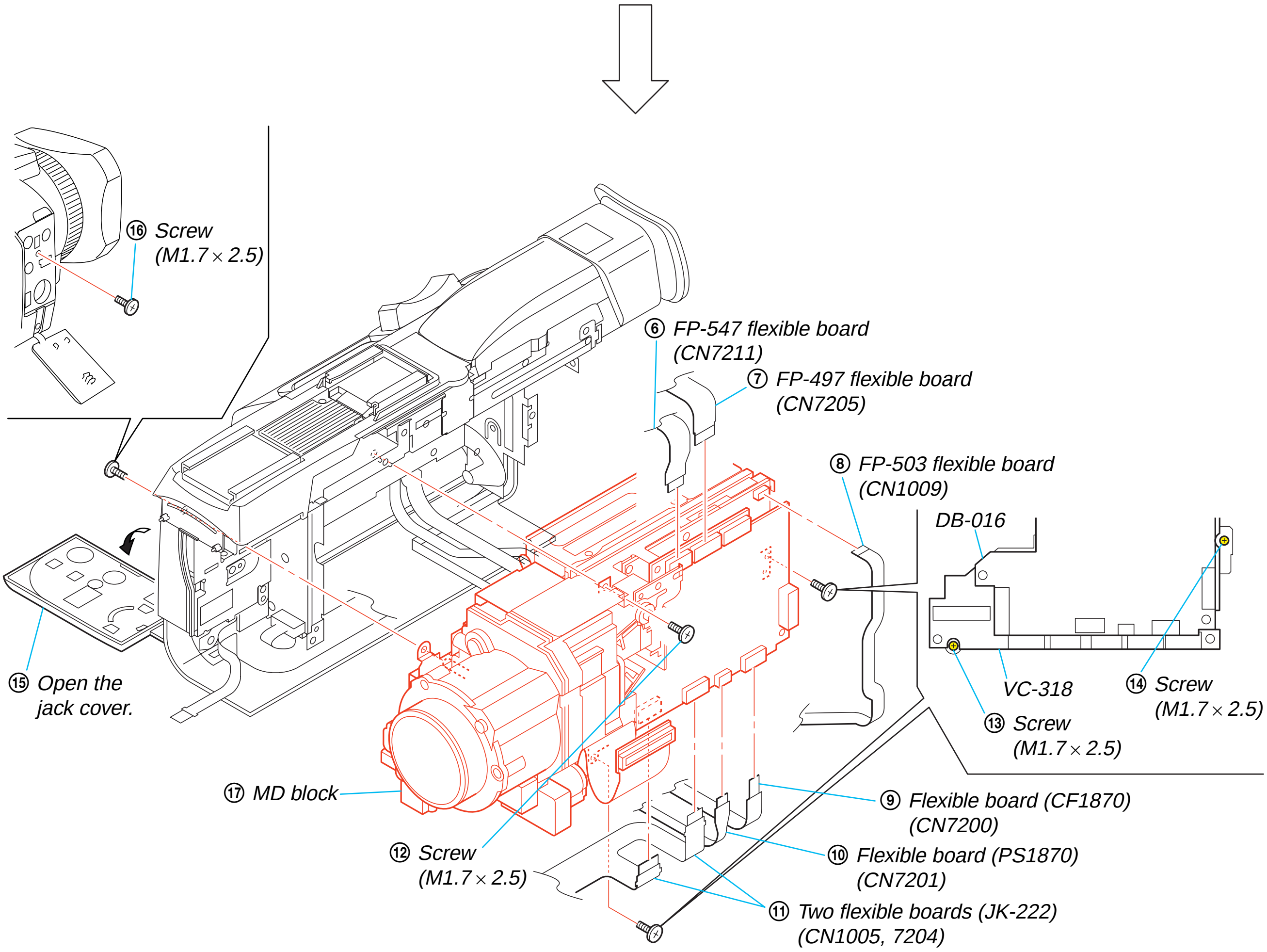

④ Three screws (M1.7)
⑤ Lift the view finder.
③ Screw (M1.7)
⑦ Battery panel block
⑥
① Harness (BT terminal) (CN7202)
② Screw (M1.7)

2-12. DB-016 BOARD

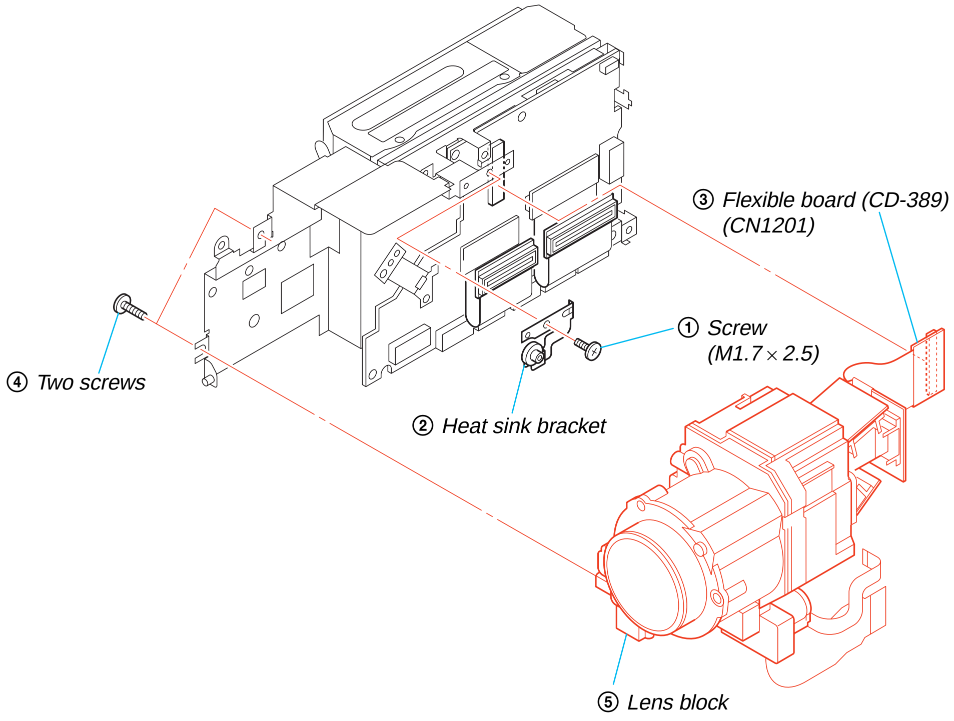

④ DB-016 board
DB-016
① Flexible board (lens block) (CN1004)
③ Two screws (M1.7 × 2.5)
② Flexible board (lens block) (CN1501)

2-13. MD BLOCK

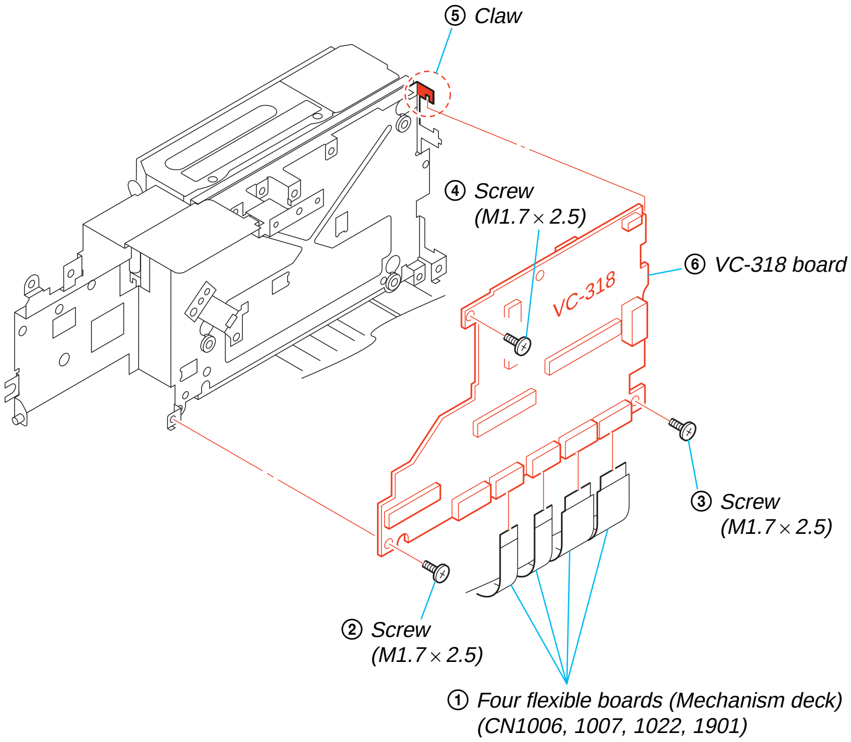

③ CCD heat sink (R)
④ CCD heat sink (G)
⑤ CCD heat sink (B)
① Screw
(M1.7 × 2.5)
② MF knob retainer plate


⑯ Screw
(M1.7 × 2.5)
⑥ FP-547 flexible board
(CN7211)
⑦ FP-497 flexible board
(CN7205)
⑧ FP-503 flexible board
(CN1009)
DB-016
⑮ Open the
jack cover.
VC-318
⑭ Screw
(M1.7 × 2.5)
⑬ Screw
(M1.7 × 2.5)
⑰ MD block
⑨ Flexible board (CF1870)
(CN7200)
⑫ Screw
(M1.7 × 2.5)
⑩ Flexible board (PS1870)
(CN7201)
⑪ Two flexible boards (JK-222)
(CN1005, 7204)

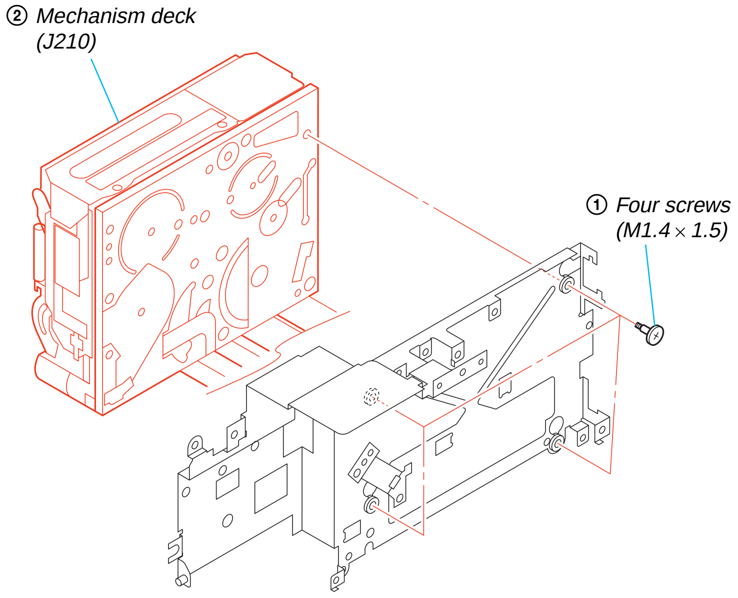
2-14. LENS BLOCK


③ Flexible board (CD-389)
(CN1201)
① Screw
(M1.7 × 2.5)
④ Two screws
② Heat sink bracket
⑤ Lens block

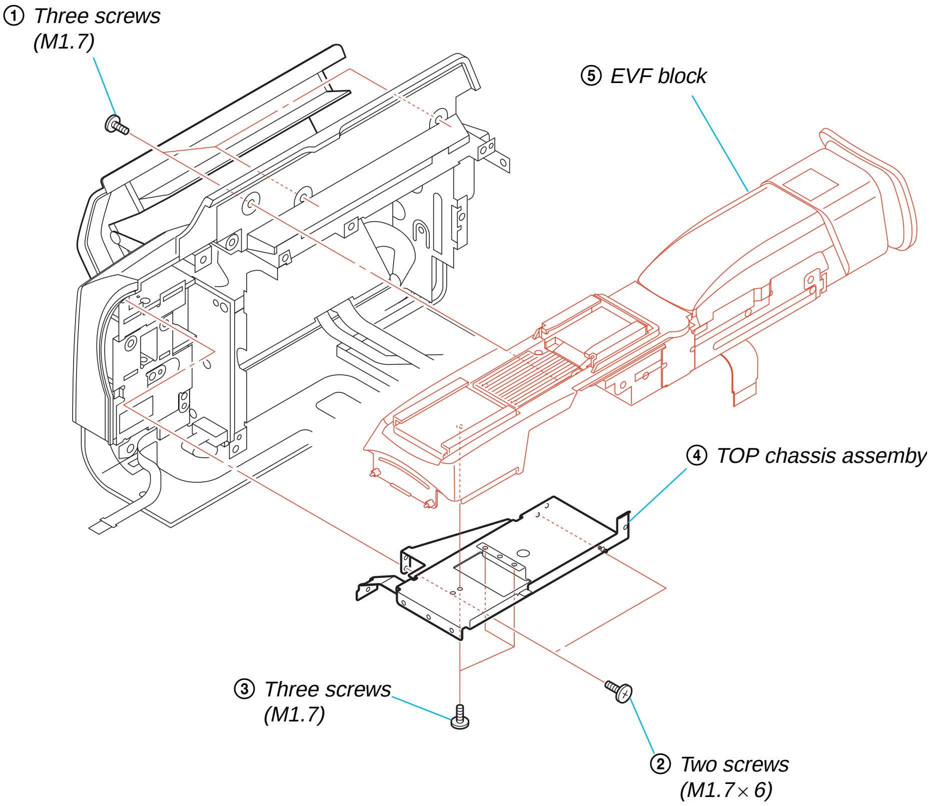
2-15. VC-318 BOARD


⑤ Claw
④ Screw
(M1.7 × 2.5)
⑥ VC-318 board
VC-318
③ Screw
(M1.7 × 2.5)
② Screw
(M1.7 × 2.5)
① Four flexible boards (Mechanism deck)
(CN1006, 1007, 1022, 1901)

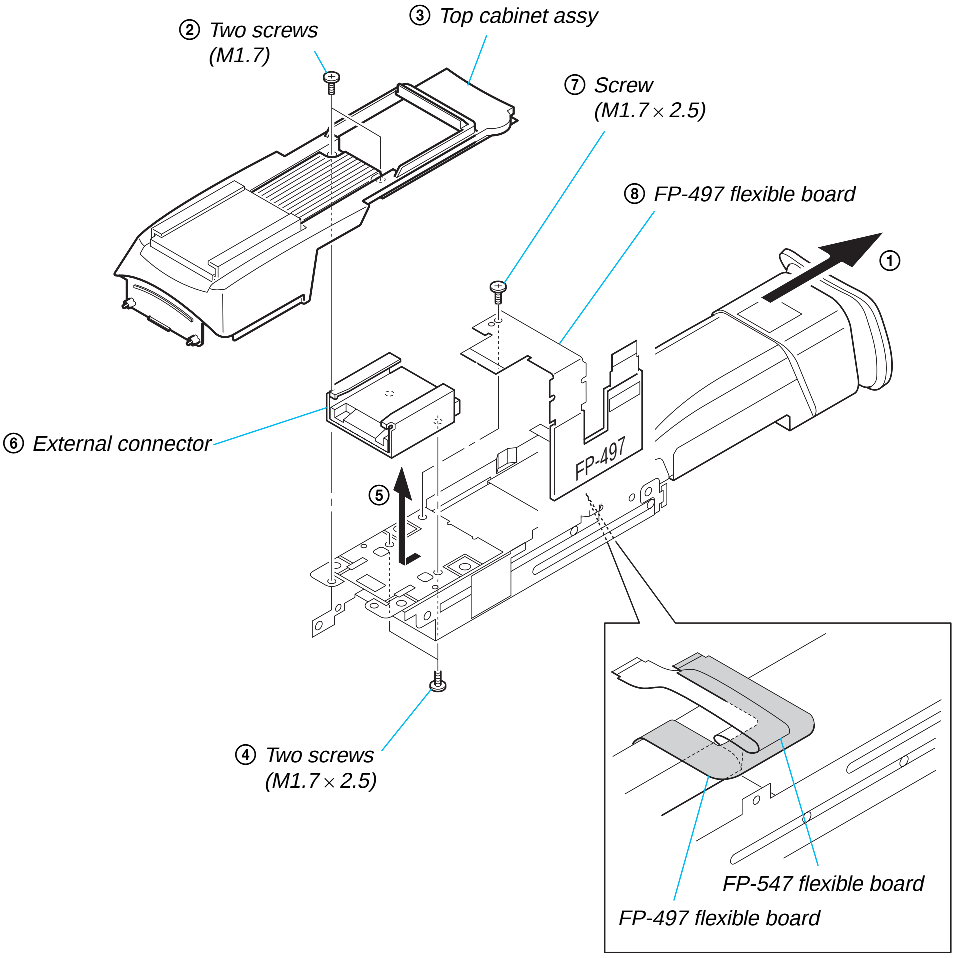
2-16. MECHANISM DECK (J210)


② Mechanism deck
(J210)
① Four screws
(M1.4 × 1.5)

2-17. EVF BLOCK

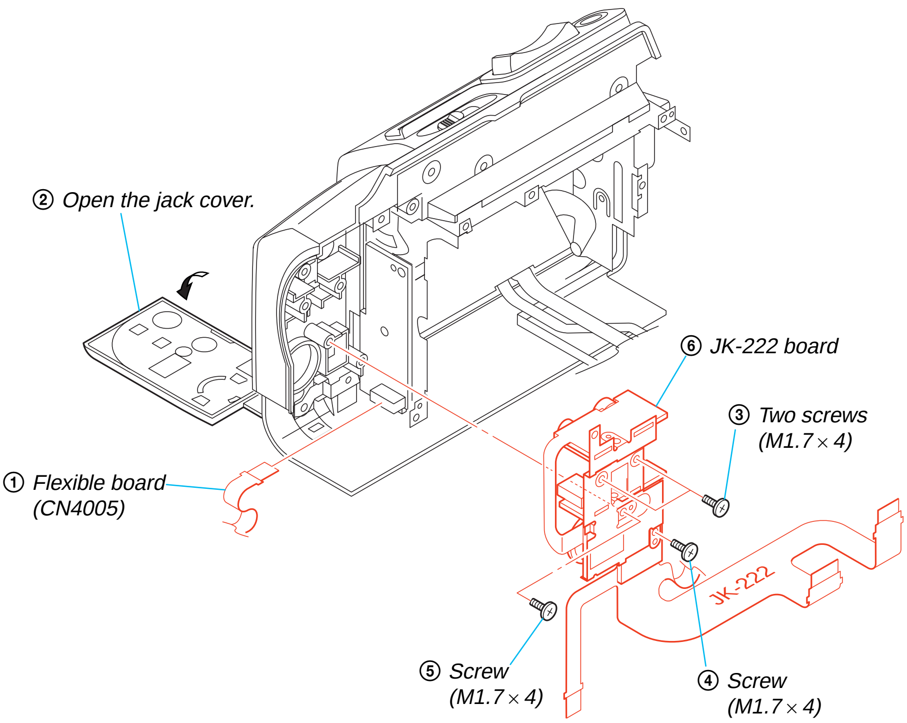

① Three screws
(M1.7)
⑤ EVF block
④ TOP chassis assemby
③ Three screws
(M1.7)
② Two screws
(M1.7 × 6)

2-18. FP-497 FLEXIBLE BOARD


② Two screws
(M1.7)
③ Top cabinet assy
⑦ Screw
(M1.7 × 2.5)
⑧ FP-497 flexible board
①
⑥ External connector
FP-497
⑤
④ Two screws
(M1.7 × 2.5)
FP-547 flexible board
FP-497 flexible board

Note: *When installing FP-497 flexible board and FP-547 flexible board, please attach, as shown in a figure.*

2-19. JK-222 BOARD


② Open the jack cover.
⑥ JK-222 board
③ Two screws
(M1.7 × 4)
① Flexible board
(CN4005)
JK-222
⑤ Screw
(M1.7 × 4)
④ Screw
(M1.7 × 4)

[SERVICE POSITION TO CHECK THE CAMERA SECTION]

Connection to Check the Camera Section

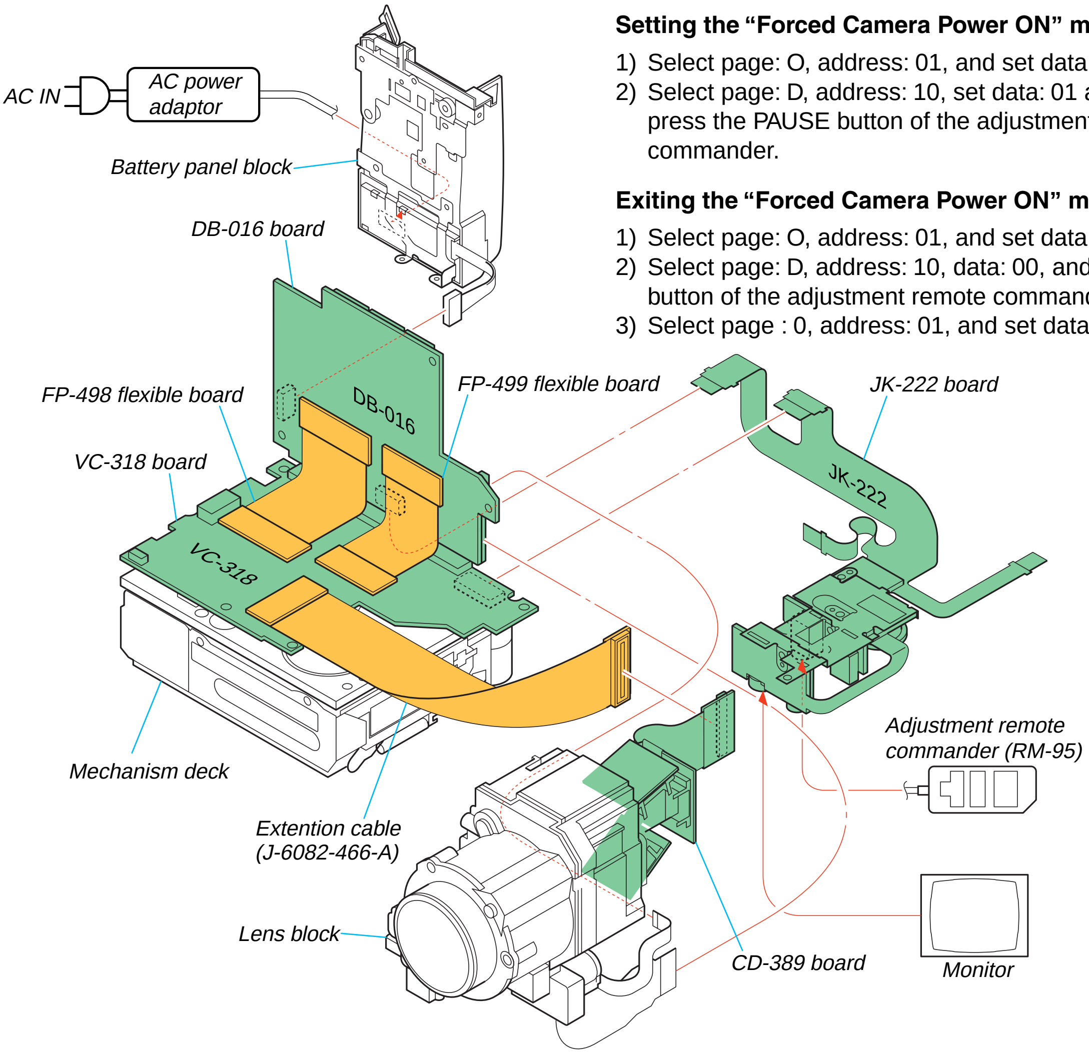
To check the camera section, set the camera to the "Forced camera power ON" mode.
Operate the camera functions of the zoom and focus using the adjustment remote commander (with the HOLD switch set in the OFF position).

Setting the "Forced Camera Power ON" mode

1) Select page: O, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01 and press the PAUSE button of the adjustment remote commander.

Exiting the "Forced Camera Power ON" mode

1) Select page: O, address: 01, and set data: 01.
2) Select page: D, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page : 0, address: 01, and set data: 00.


AC IN
AC power adaptor
Battery panel block
DB-016 board
FP-498 flexible board
VC-318 board
DB-016
VC-318
FP-499 flexible board
JK-222 board
JK-222
Mechanism deck
Extention cable (J-6082-466-A)
Lens block
CD-389 board
Adjustment remote commander (RM-95)
Monitor

[SERVICE POSITION TO CHECK THE VTR SECTION]

Connection to Check the VTR Section

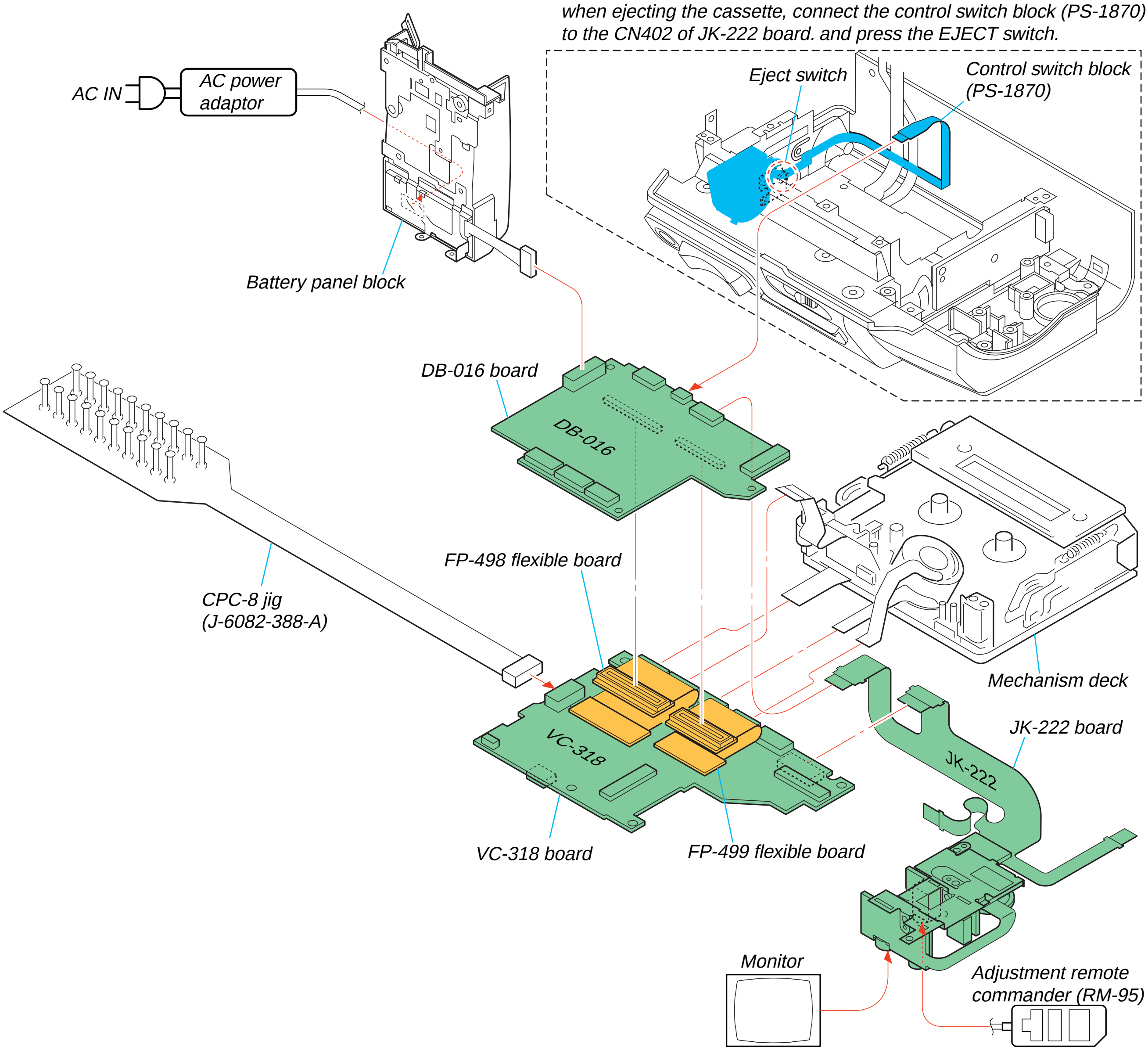
To check the VTR section, set the VTR to the “Forced VTR power ON” mode. (Or, connect the control switch block (PS-1870) to the CN7201 of DB-016board and set the power switch to the “VIDEO” position.)
Operate the VTR function using the adjustment remote commander (with the HOLD switch set in the OFF position).

Setting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

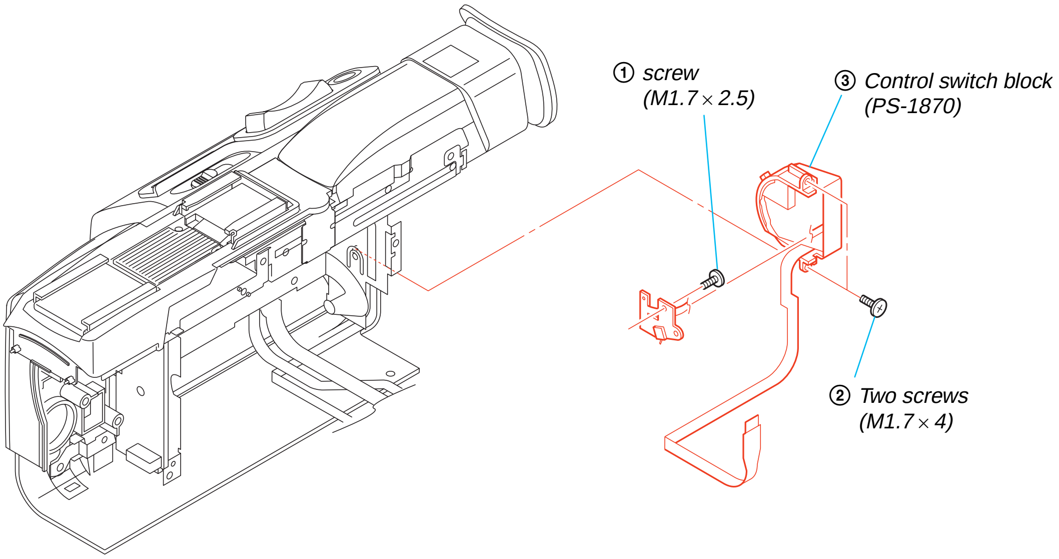
Exiting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

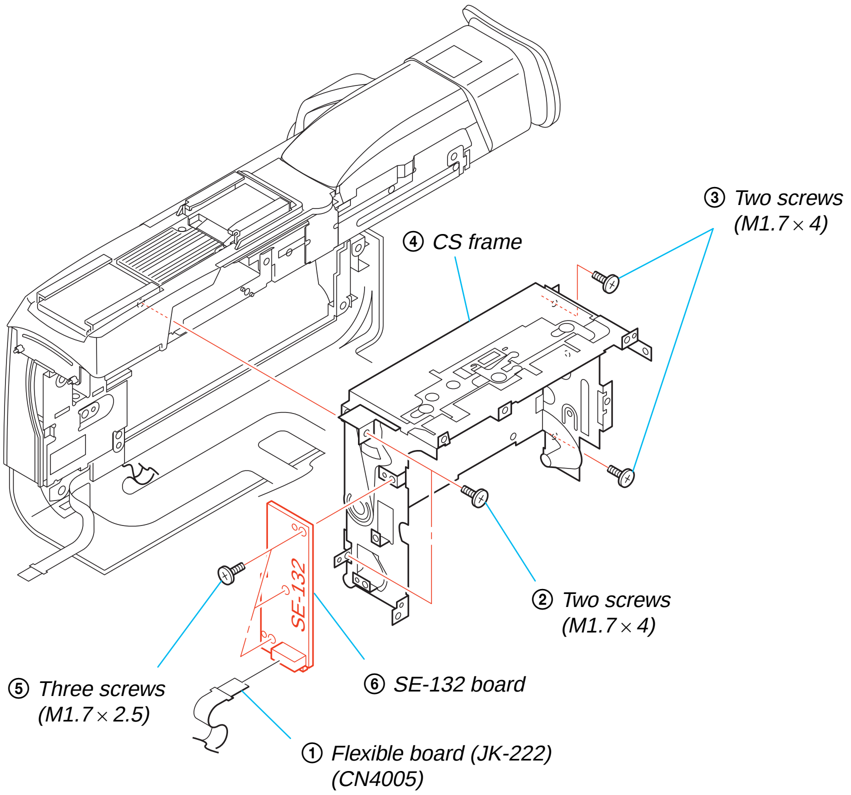

When exiting the “Forced VTR Power ON” mode, connect the control switch block (PS-1870) to the CN7201 of DB-016 board. Or, when ejecting the cassette, connect the control switch block (PS-1870) to the CN402 of JK-222 board. and press the EJECT switch.

AC IN
AC power adaptor
Battery panel block
Eject switch
Control switch block (PS-1870)
DB-016 board
DB-016
CPC-8 jig (J-6082-388-A)
FP-498 flexible board
Mechanism deck
JK-222 board
JK-222
VC-318
VC-318 board
FP-499 flexible board
Monitor
Adjustment remote commander (RM-95)

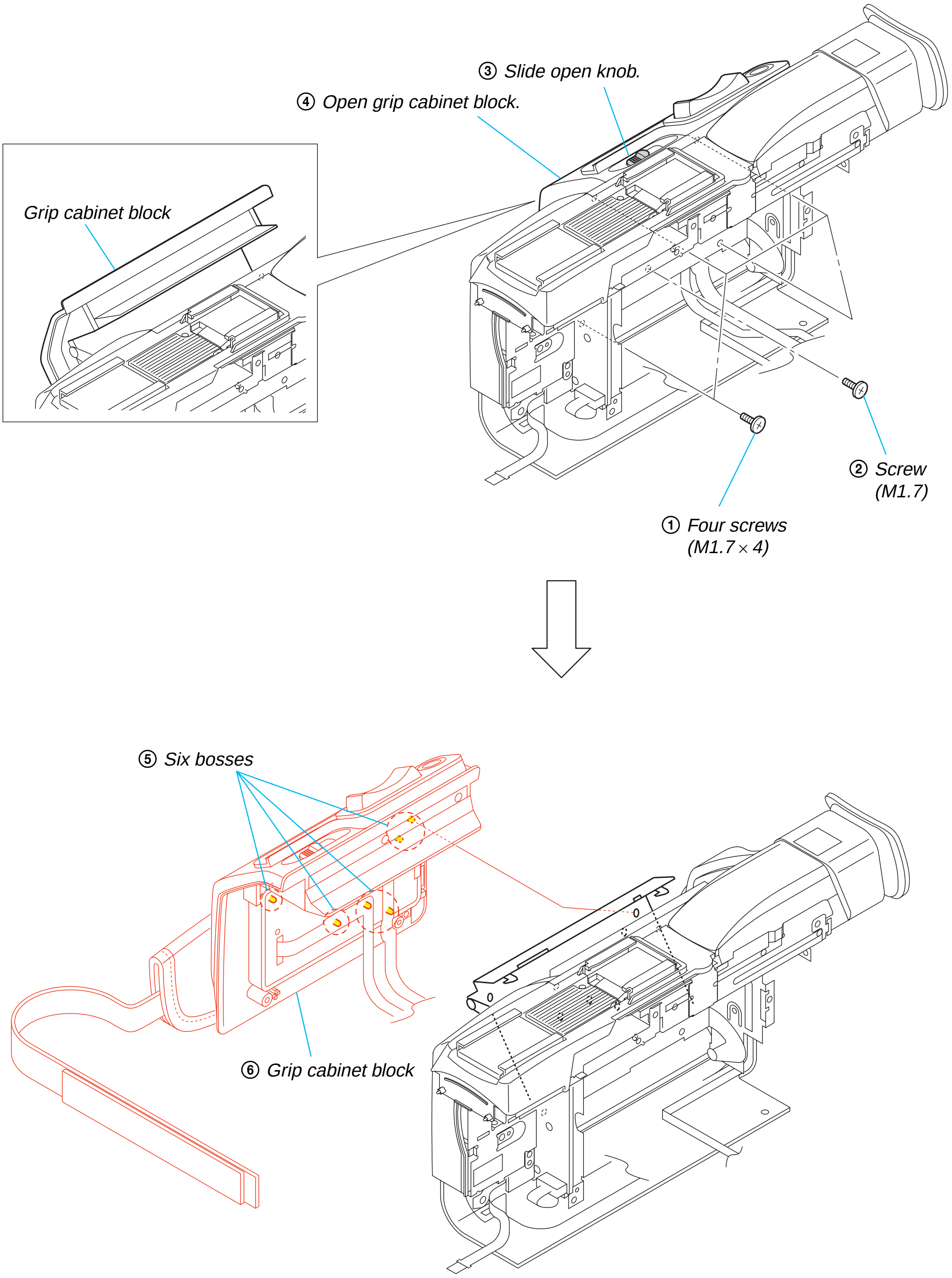
2-20. CONTROL SWITCH BLOCK (PS-1870)


① screw
(M1.7 × 2.5)
③ Control switch block
(PS-1870)
② Two screws
(M1.7 × 4)

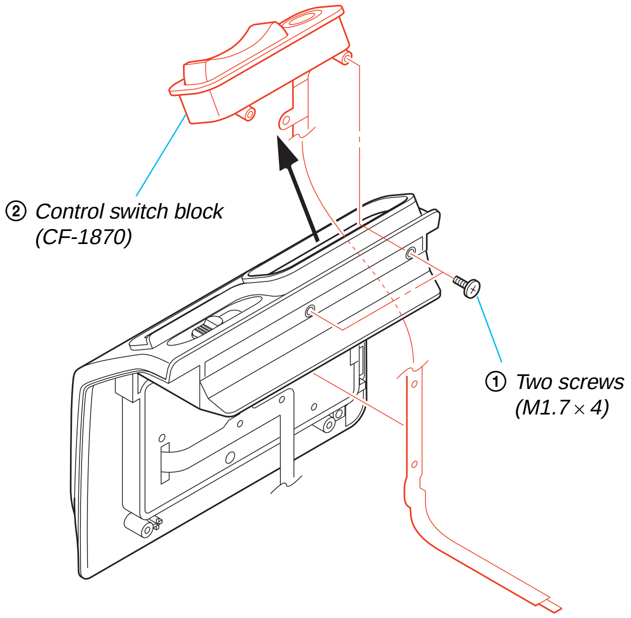
2-21. SE-132 BOARD


③ Two screws
(M1.7 × 4)
④ CS frame
SE-132
② Two screws
(M1.7 × 4)
⑤ Three screws
(M1.7 × 2.5)
⑥ SE-132 board
① Flexible board (JK-222)
(CN4005)

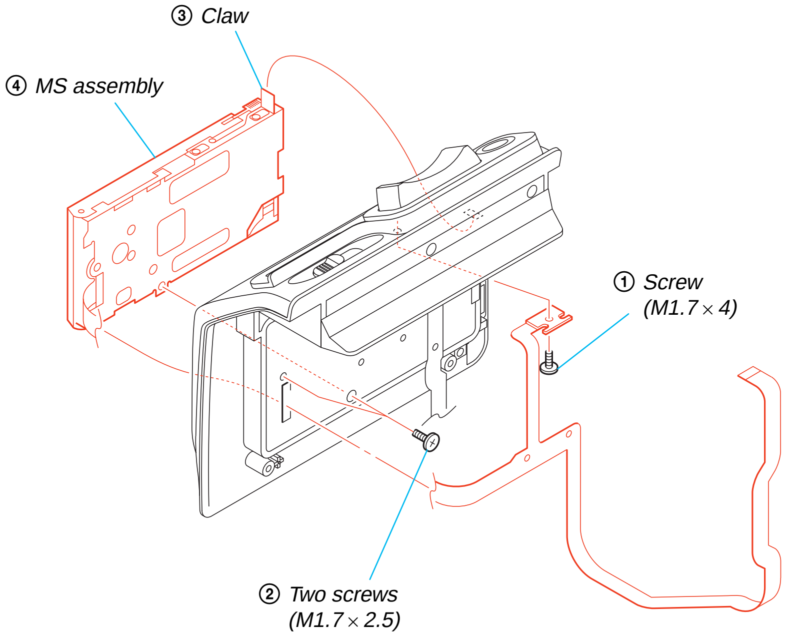
2-22. GRIP CABINET BLOCK


③ Slide open knob.
④ Open grip cabinet block.
Grip cabinet block
② Screw
(M1.7)
① Four screws
(M1.7 × 4)
⑤ Six bosses
⑥ Grip cabinet block

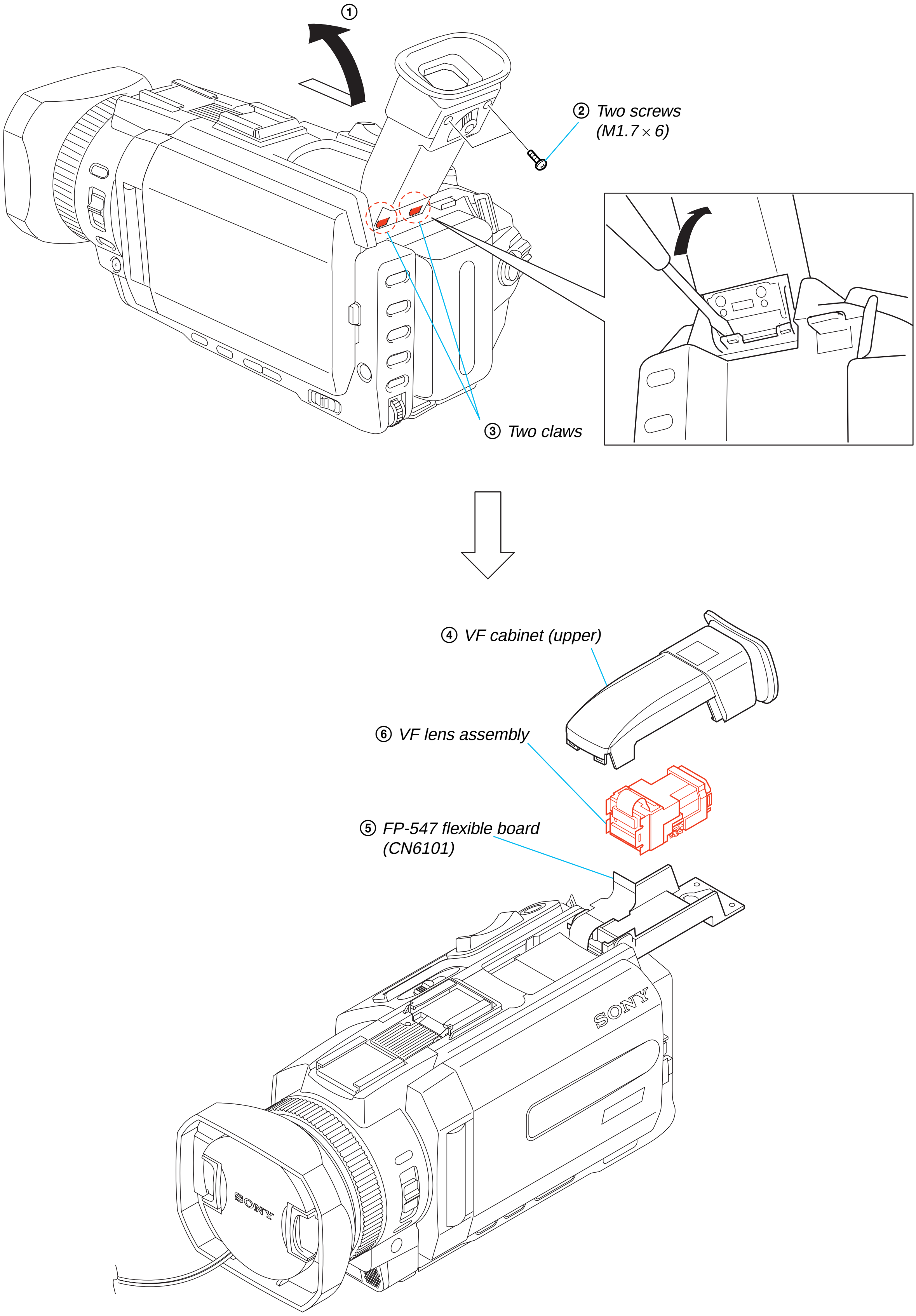
2-23. CONTROL SWITCH BLOCK (CF-1870)


② Control switch block
(CF-1870)
① Two screws
(M1.7 × 4)

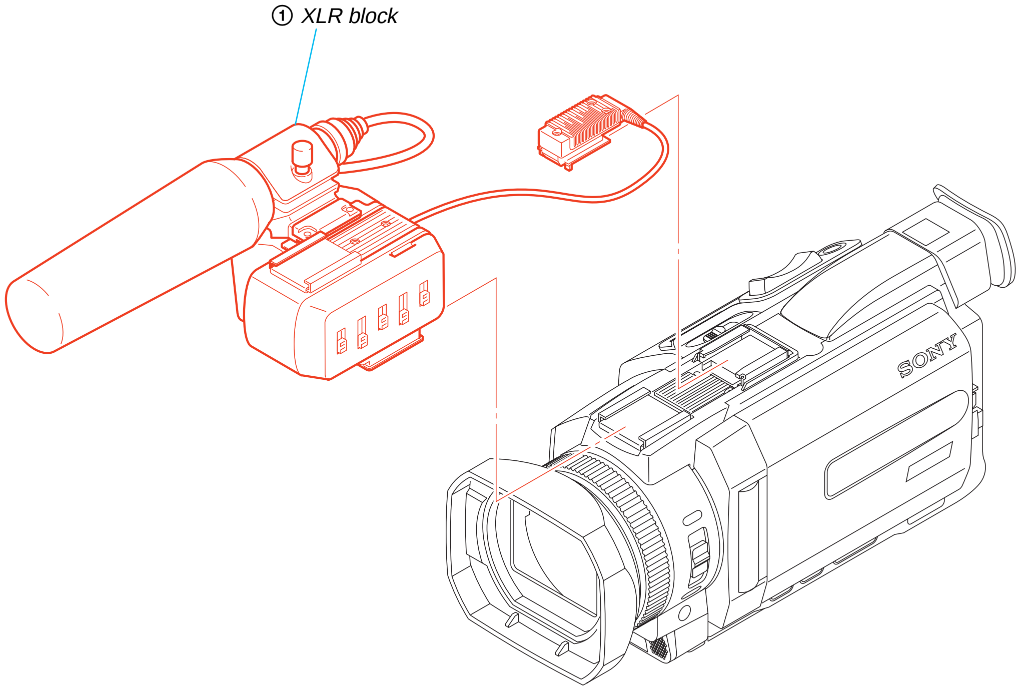
2-24. MS ASSEMBLY


③ Claw
④ MS assembly
① Screw
(M1.7 × 4)
② Two screws
(M1.7 × 2.5)

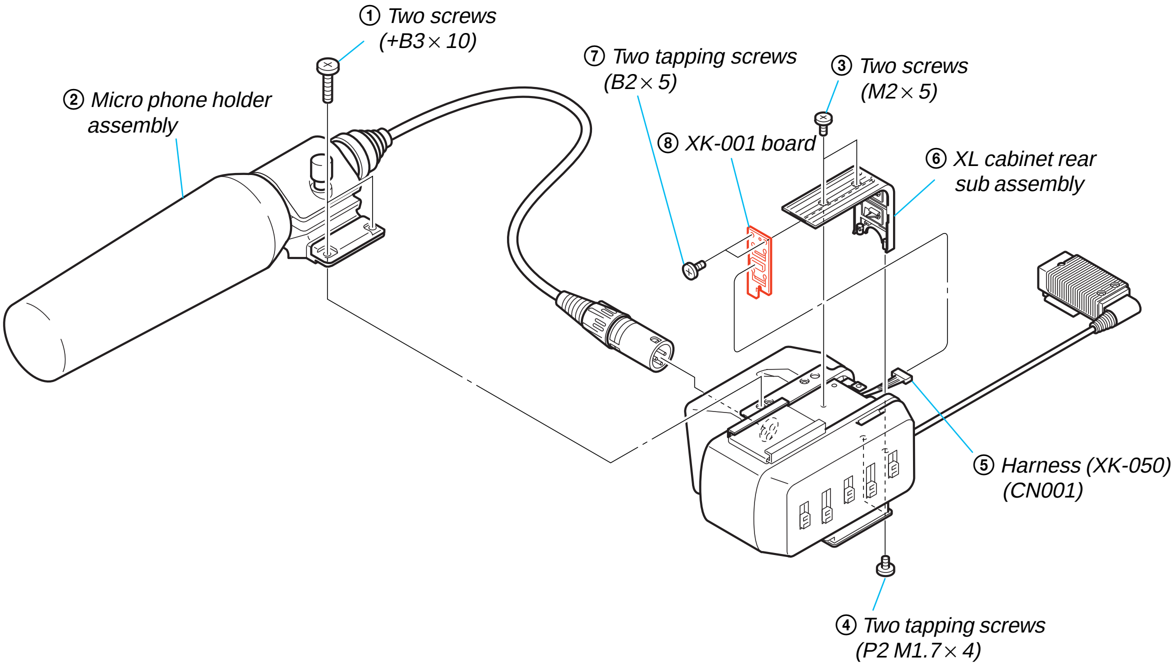
2-25. VF LENS ASSEMBLY


①
② Two screws
(M1.7 × 6)
③ Two claws
④ VF cabinet (upper)
⑥ VF lens assembly
⑤ FP-547 flexible board
(CN6101)
SONY
SONY

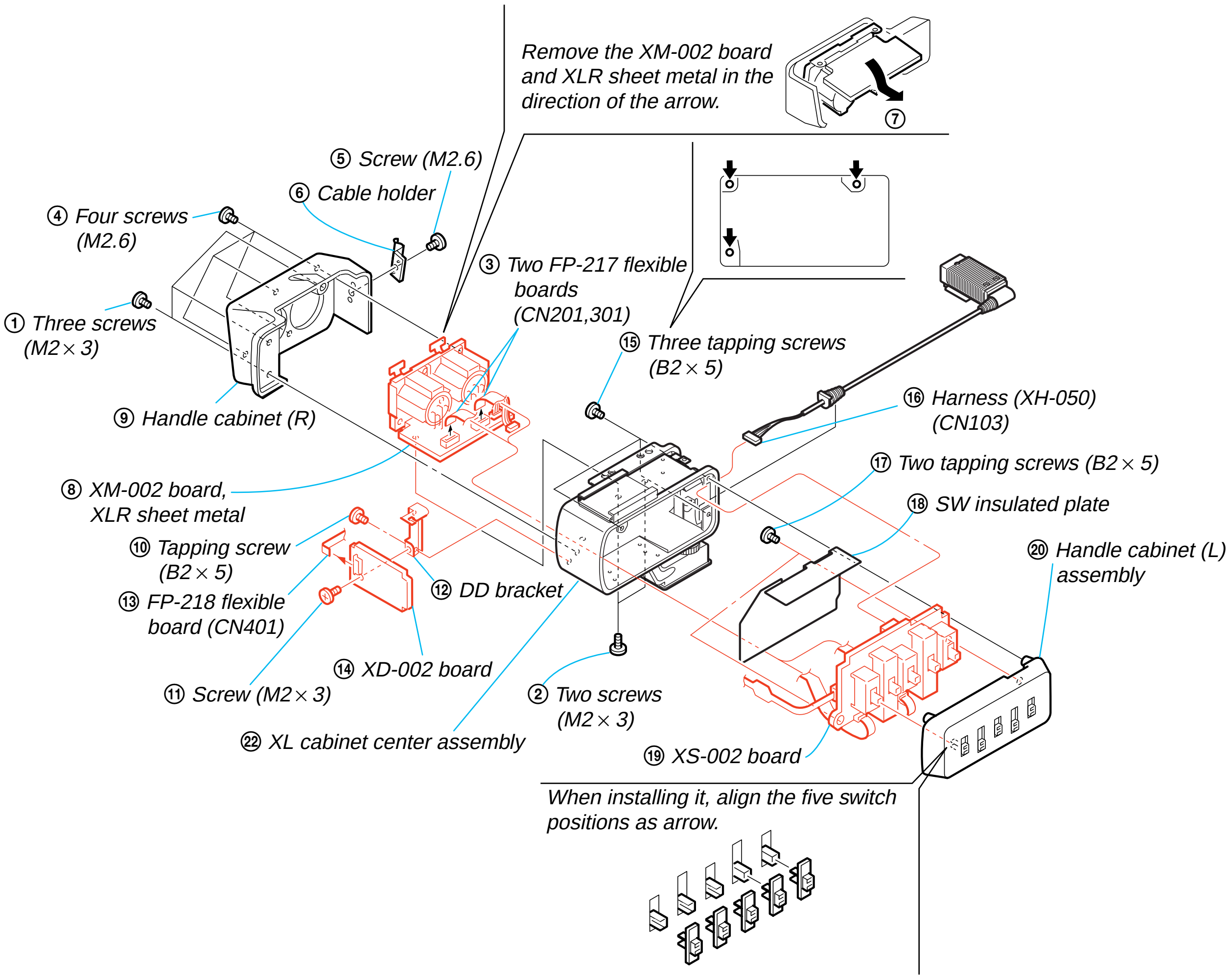
2-26. XLR BLOCK


① XLR block
SONY

2-27. XK-001 BOARD


① Two screws
(+B3 × 10)
② Micro phone holder
assembly
⑦ Two tapping screws
(B2 × 5)
③ Two screws
(M2 × 5)
⑧ XK-001 board
⑥ XL cabinet rear
sub assembly
⑤ Harness (XK-050)
(CN001)
④ Two tapping screws
(P2 M1.7 × 4)

2-28. XM-002 BOARD, XD-002 BOARD, XS-002 BOARD

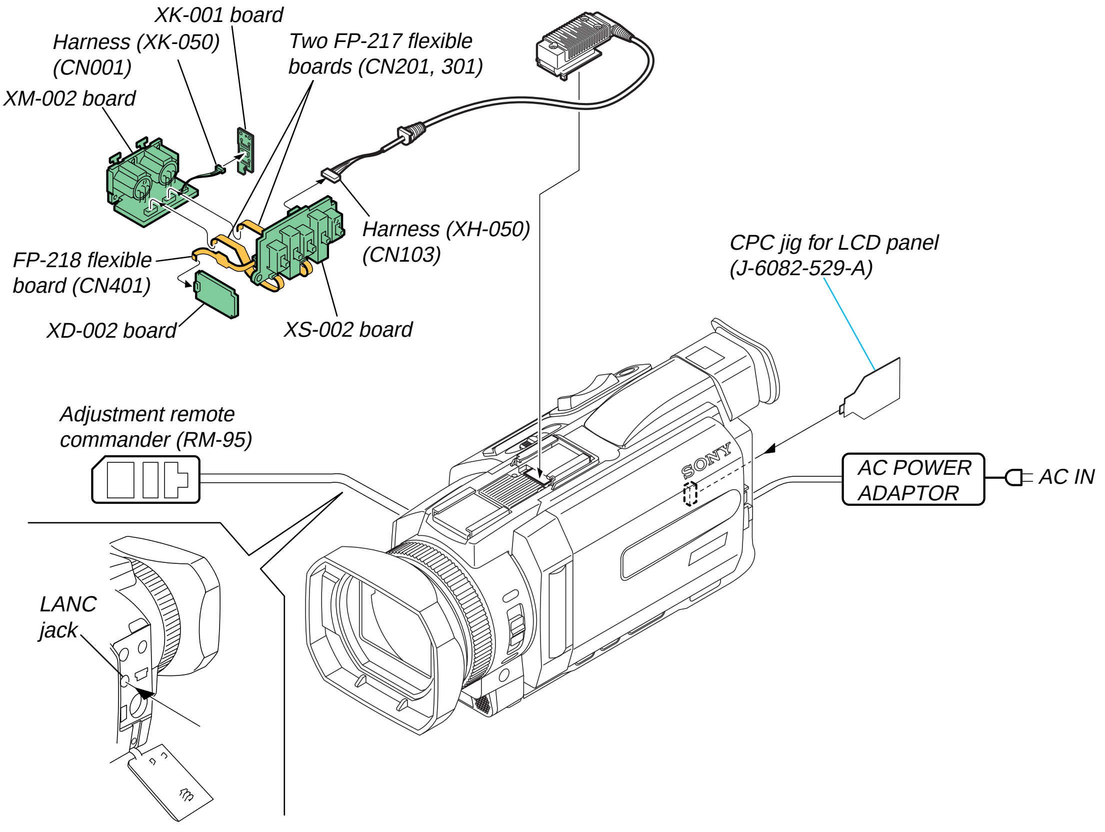


Remove the XM-002 board and XLR sheet metal in the direction of the arrow.

When installing it, align the five switch positions as arrow.

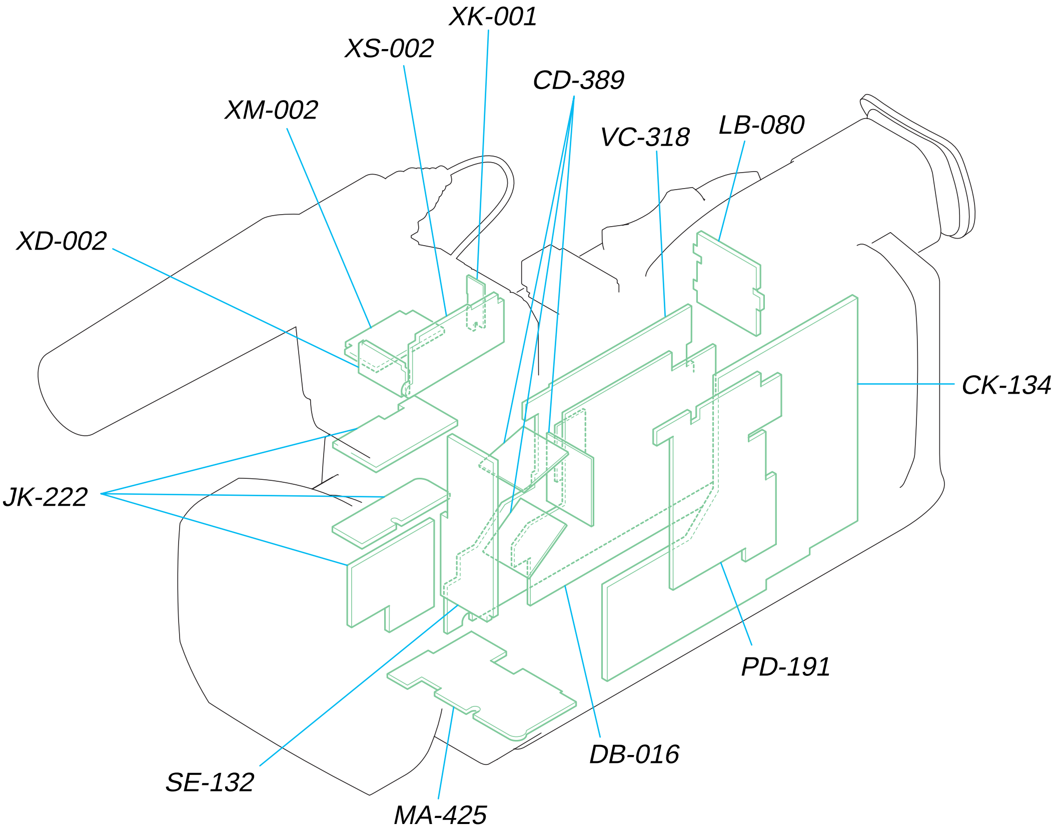
⑦
⑤ Screw (M2.6)
⑥ Cable holder
④ Four screws (M2.6)
③ Two FP-217 flexible boards (CN201,301)
① Three screws (M2 × 3)
⑮ Three tapping screws (B2 × 5)
⑯ Harness (XH-050) (CN103)
⑨ Handle cabinet (R)
⑰ Two tapping screws (B2 × 5)
⑧ XM-002 board, XLR sheet metal
⑱ SW insulated plate
⑩ Tapping screw (B2 × 5)
⑳ Handle cabinet (L) assembly
⑬ FP-218 flexible board (CN401)
⑫ DD bracket
⑭ XD-002 board
⑪ Screw (M2 × 3)
② Two screws (M2 × 3)
㉒ XL cabinet center assembly
⑲ XS-002 board

[SERVICE POSITION TO CHECK XLR SECTION]



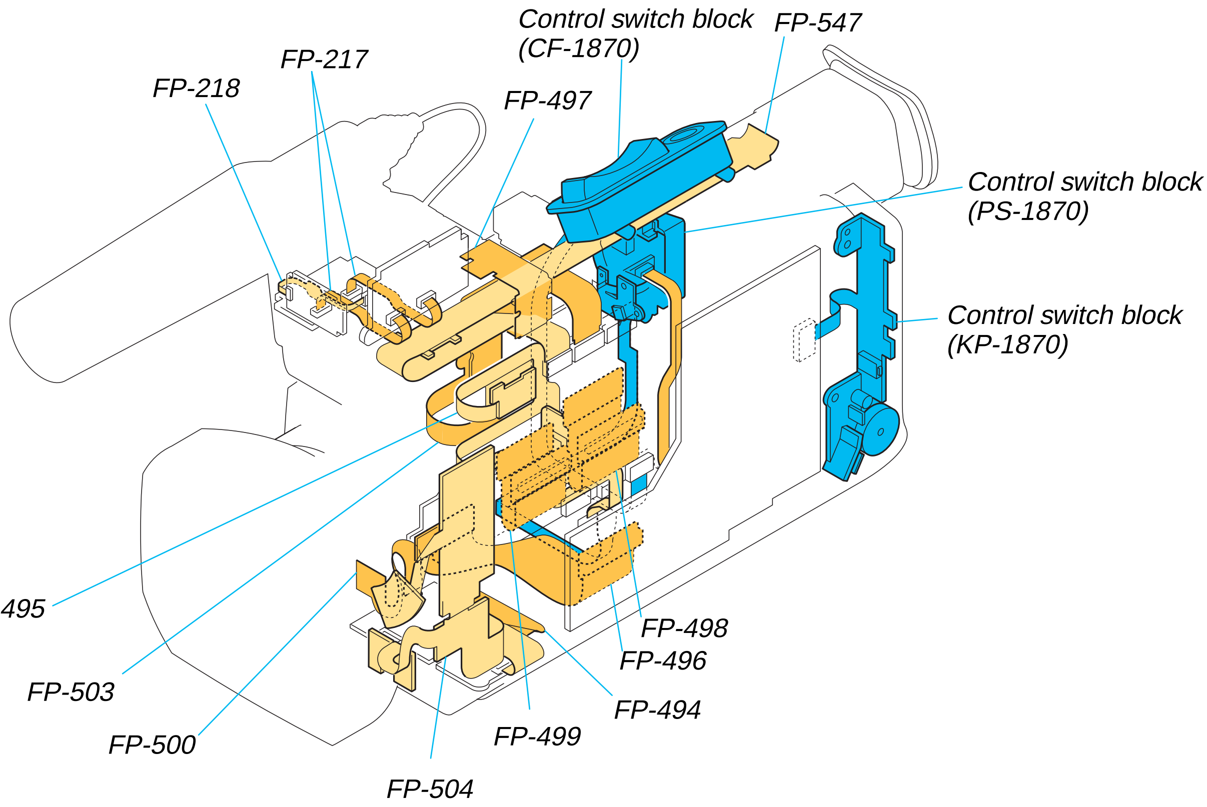
XK-001 board
Harness (XK-050) (CN001)
Two FP-217 flexible boards (CN201, 301)
XM-002 board
Harness (XH-050) (CN103)
FP-218 flexible board (CN401)
CPC jig for LCD panel (J-6082-529-A)
XD-002 board
XS-002 board
Adjustment remote commander (RM-95)
SONY
AC POWER ADAPTOR
AC IN
LANC jack

2-29. CIRCUIT BOARDS LOCATION



Board Name	Function
CD-389	CCD IMAGER
CK-134	CONTROL SWITCH
DB-016	LENS MOTOR DRIVE, VAP DRIVER, MIC VOL, AUDIO PROCESS, VIDEO IN/OUT, EVF DRIVE, TIMING GENERATOR, CONNECTOR, DC/DC CONTROL
JK-222	AV IN/OUT, DV/USB CONNECTOR
LB-080	EVF, EVF BACK LIGHT
MA-425	MIC AMP, AF LASER CONTROL
PD-191	LCD DRIVER TIMING GENERATOR, BACK LIGHT
SE-132	PITCH/YAW SENSOR
VC-318	A/D CONVERTER, TIMING GENERATOR, CAMERA RGB PROCESS, CAMERA PROCESS, MPEG MOVIE/DIGITAL STILL PROCESS, HI CONTROL, DIGITAL STILL CONTROL, FLASH MEMORY, SDRAM, DV SIGNAL PROCESS, DV INTERFACE, REC/PB AMP, USB INTERFACE, VIDEO A/D CONVERTER, DRUM/CAPSTAN/LOADING DRIVE, CAMERA/MECHA CONTROL, HI CONTROL, LANC, RESET, BEEP, AFLD, CONNECTOR, EVR
XD-002	DC/DC CONVERTER SIRCS
XK-001	LOW CUT SW
XM-002	MIC AMP
XS-002	MIC SELECT

2-30. FLEXIBLE BOARDS LOCATION


Control switch block
(CF-1870)
FP-547
FP-217
FP-218
FP-497
Control switch block
(PS-1870)
Control switch block
(KP-1870)
FP-495
FP-498
FP-496
FP-503
FP-494
FP-500
FP-499
FP-504

COVER

3. BLOCK DIAGRAMS

Link

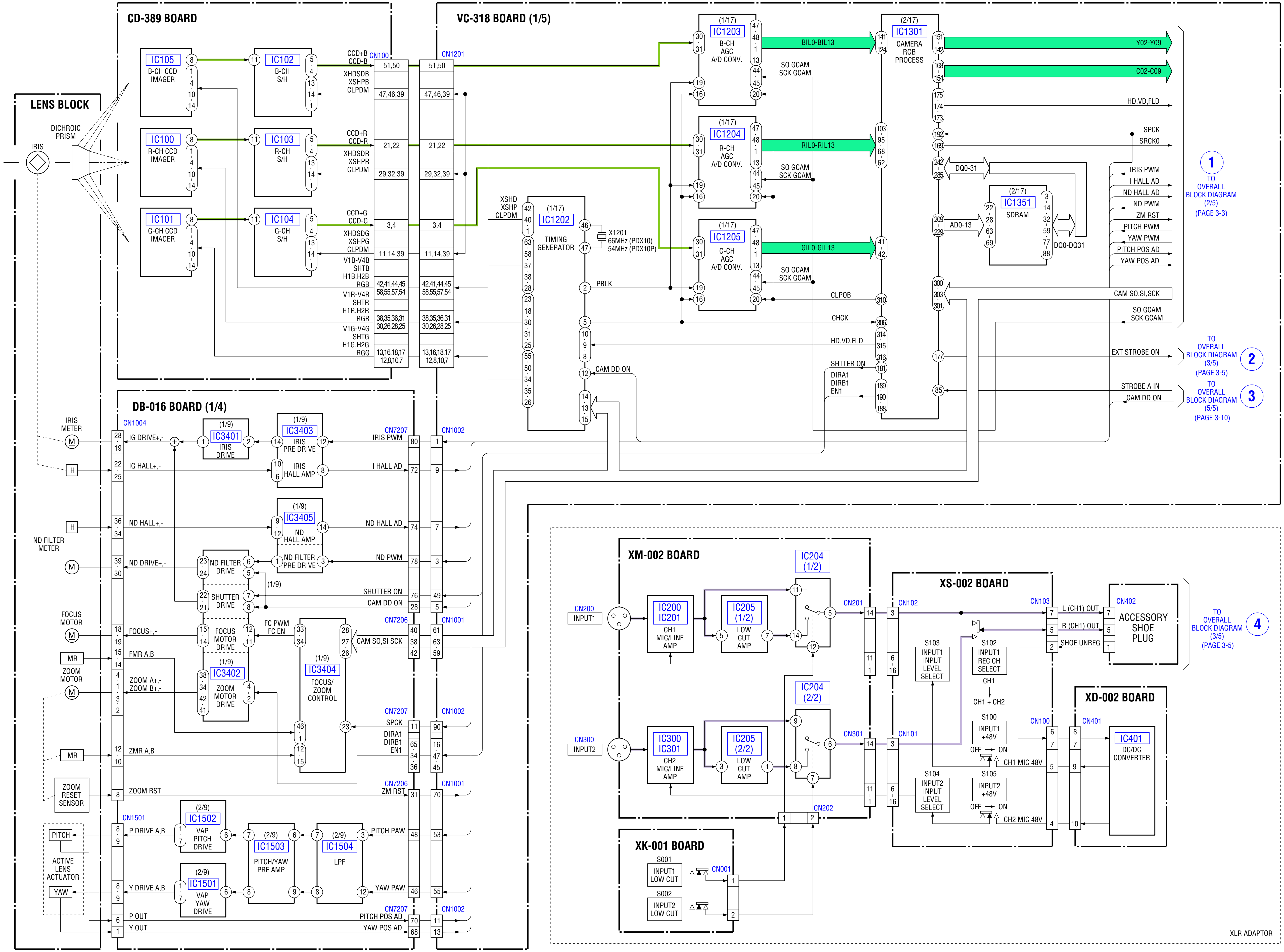
- OVERALL BLOCK DIAGRAM (1/5)
- OVERALL BLOCK DIAGRAM (2/5)
- OVERALL BLOCK DIAGRAM (3/5)
- OVERALL BLOCK DIAGRAM (4/5)
- OVERALL BLOCK DIAGRAM (5/5)
- POWER BLOCK DIAGRAM (1/3)
- POWER BLOCK DIAGRAM (2/3)
- POWER BLOCK DIAGRAM (3/3)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/5)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

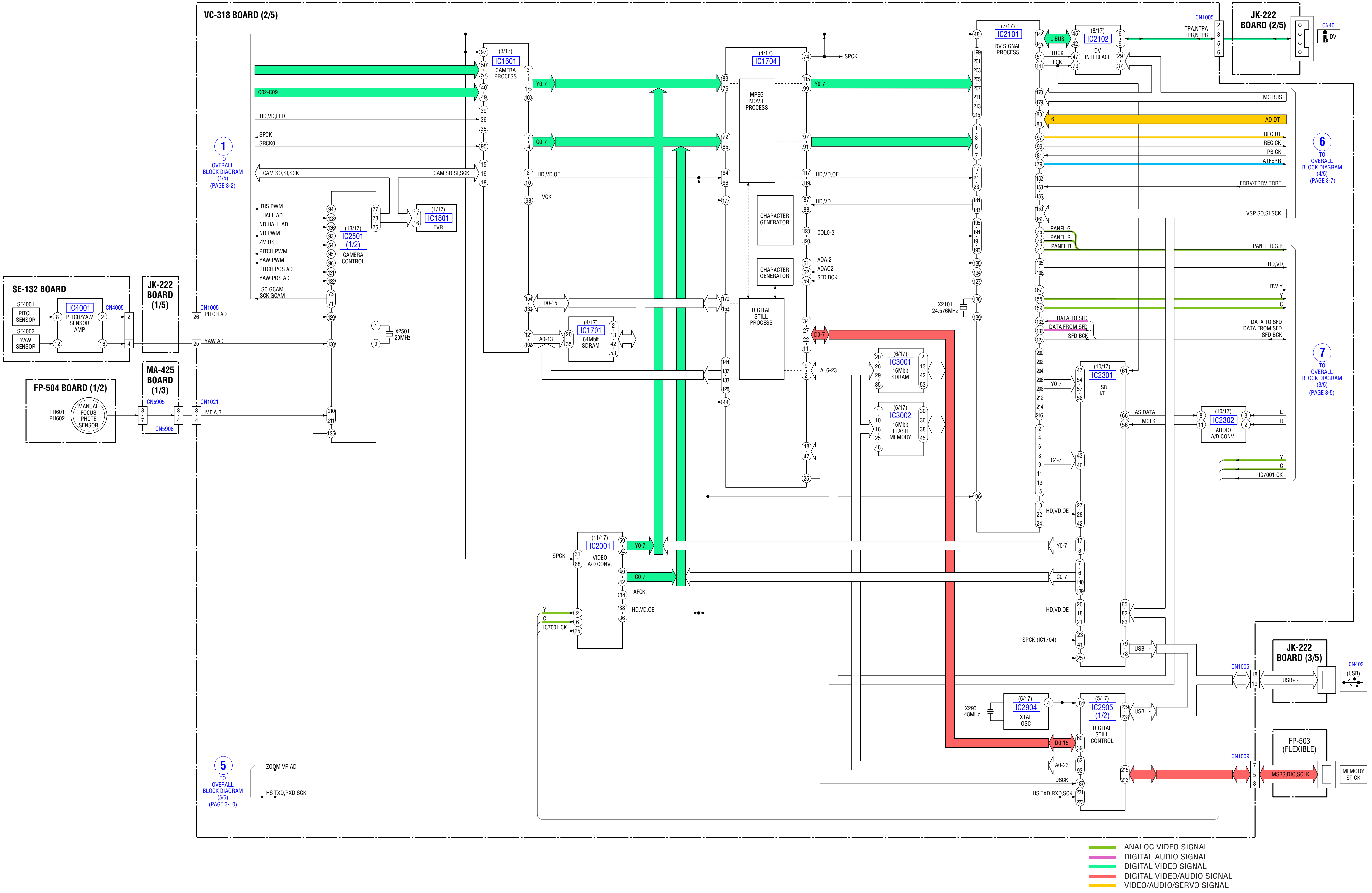
🟩 ANALOG VIDEO SIGNAL
▨ ANALOG AUDIO SIGNAL
🟩 DIGITAL VIDEO SIGNAL



CD-389 BOARD
LENS BLOCK
DICHROIC PRISM
IRIS
IC105 B-CH CCD IMAGER
IC100 R-CH CCD IMAGER
IC101 G-CH CCD IMAGER
IC102 B-CH S/H
IC103 R-CH S/H
IC104 G-CH S/H
CCD+B CCD-B
XHDSDB XSHPB CLPDM
CCD+R CCD-R
XHDSDR XSHPR CLPDM
CCD+G CCD-G
XHDSDG XSHPG CLPDM
V1B-V4B SHTB H1B,H2B RGB
V1R-V4R SHTR H1R,H2R RGR
V1G-V4G SHTG H1G,H2G RGG
CN100
CN1201
VC-318 BOARD (1/5)
XSHD XSHP CLPDM
(1/17) IC1202 TIMING GENERATOR
X1201 66MHz (PDX10) 54MHz (PDX10P)
PBLK
CAM DD ON
(1/17) IC1203 B-CH AGC A/D CONV.
(1/17) IC1204 R-CH AGC A/D CONV.
(1/17) IC1205 G-CH AGC A/D CONV.
BIL0-BIL13
RIL0-RIL13
GIL0-GIL13
SO GCAM SCK GCAM
(2/17) IC1301 CAMERA RGB PROCESS
(2/17) IC1351 SDRAM
AD0-13
DQ0-31
DQ0-DQ31
Y02-Y09
C02-C09
HD,VD,FLD
SPCK
SRCK0
IRIS PWM
I HALL AD
ND HALL AD
ND PWM
ZM RST
PITCH PWM
YAW PWM
PITCH POS AD
YAW POS AD
CAM SO,SI,SCK
SO GCAM
SCK GCAM
CLPOB
CHCK
HD,VD,FLD
SHTTER ON
DIRA1 DIRB1 EN1
EXT STROBE ON
STROBE A IN
CAM DD ON
1
TO OVERALL BLOCK DIAGRAM (2/5) (PAGE 3-3)
2
TO OVERALL BLOCK DIAGRAM (3/5) (PAGE 3-5)
3
TO OVERALL BLOCK DIAGRAM (5/5) (PAGE 3-10)
DB-016 BOARD (1/4)
CN1004
CN7207
CN1002
CN7206
CN1001
CN1501
IRIS METER
IG DRIVE+,-
IG HALL+,-
(1/9) IC3401 IRIS DRIVE
(1/9) IC3403 IRIS PRE DRIVE
IRIS HALL AMP
IRIS PWM
I HALL AD
ND FILTER METER
ND HALL+,-
ND DRIVE+,-
(1/9) IC3405 ND HALL AMP
ND HALL AD
ND FILTER DRIVE
ND FILTER PRE DRIVE
ND PWM
(1/9)
SHUTTER DRIVE
SHUTTER ON
CAM DD ON
FOCUS MOTOR
FOCUS+,-
FMR A,B
FOCUS MOTOR DRIVE
ZOOM MOTOR
ZOOM A+,- ZOOM B+,-
(1/9) IC3402 ZOOM MOTOR DRIVE
FC PWM FC EN
CAM SO,SI SCK
(1/9) IC3404 FOCUS/ ZOOM CONTROL
SPCK
DIRA1 DIRB1 EN1
MR
ZMR A,B
ZOOM RESET SENSOR
ZOOM RST
ZM RST
PITCH
ACTIVE LENS ACTUATOR
YAW
P DRIVE A,B
(2/9) IC1502 VAP PITCH DRIVE
(2/9) IC1503 PITCH/YAW PRE AMP
(2/9) IC1504 LPF
PITCH PAW
Y DRIVE A,B
(2/9) IC1501 VAP YAW DRIVE
YAW PAW
P OUT
Y OUT
PITCH POS AD
YAW POS AD
XM-002 BOARD
CN200 INPUT1
IC200 IC201 CH1 MIC/LINE AMP
IC205 (1/2) LOW CUT AMP
IC204 (1/2)
CN300 INPUT2
IC300 IC301 CH2 MIC/LINE AMP
IC205 (2/2) LOW CUT AMP
IC204 (2/2)
CN201
CN301
CN202
XS-002 BOARD
CN102
CN101
CN103
CN100
S103 INPUT1 INPUT LEVEL SELECT
S102 INPUT1 REC CH SELECT
CH1 CH1 + CH2
S100 INPUT1 +48V
OFF ON
CH1 MIC 48V
S104 INPUT2 INPUT LEVEL SELECT
S105 INPUT2 +48V
OFF ON
CH2 MIC 48V
L (CH1) OUT
R (CH1) OUT
SHOE UNREG
CN402 ACCESSORY SHOE PLUG
4
TO OVERALL BLOCK DIAGRAM (3/5) (PAGE 3-5)
XD-002 BOARD
CN401
IC401 DC/DC CONVERTER
XK-001 BOARD
S001 INPUT1 LOW CUT
S002 INPUT2 LOW CUT
CN001
XLR ADAPTOR

3-2. OVERALL BLOCK DIAGRAM (2/5)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

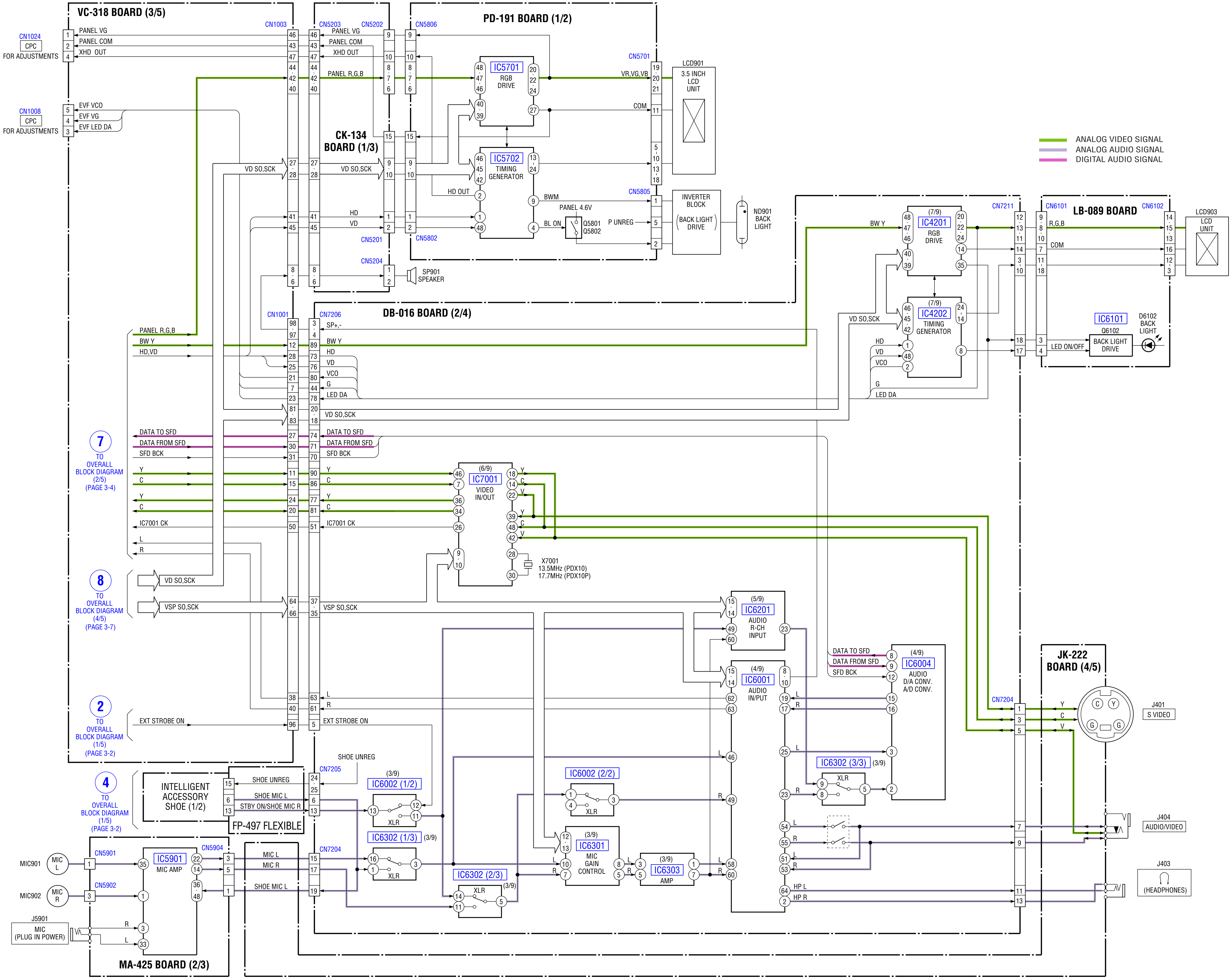

VC-318 BOARD (2/5)
SE-132 BOARD
SE4001 PITCH SENSOR
SE4002 YAW SENSOR
IC4001 PITCH/YAW SENSOR AMP
CN4005
JK-222 BOARD (1/5)
MA-425 BOARD (1/3)
CN5905
CN5906
FP-504 BOARD (1/2)
PH601 PH602 MANUAL FOCUS PHOTE SENSOR
CN1005
PITCH AD
YAW AD
CN1021
MF A,B
1 TO OVERALL BLOCK DIAGRAM (1/5) (PAGE 3-2)
5 TO OVERALL BLOCK DIAGRAM (5/5) (PAGE 3-10)
6 TO OVERALL BLOCK DIAGRAM (4/5) (PAGE 3-7)
7 TO OVERALL BLOCK DIAGRAM (3/5) (PAGE 3-5)
C02-C09
HD,VD,FLD
SPCK
SRCK0
CAM SO,SI,SCK
IRIS PWM
I HALL AD
ND HALL AD
ND PWM
ZM RST
PITCH PWM
YAW PWM
PITCH POS AD
YAW POS AD
SO GCAM
SCK GCAM
(13/17) IC2501 (1/2) CAMERA CONTROL
X2501 20MHz
(1/17) IC1801 EVR
(3/17) IC1601 CAMERA PROCESS
Y0-7
C0-7
HD,VD,OE
VCK
D0-15
A0-13
(4/17) IC1701 64Mbit SDRAM
(4/17) IC1704
MPEG MOVIE PROCESS
CHARACTER GENERATOR
CHARACTER GENERATOR
DIGITAL STILL PROCESS
HD,VD
COL0-3
ADAI2
ADAO2
SFD BCK
D0-7
A16-23
(6/17) IC3001 16Mbit SDRAM
(6/17) IC3002 16Mbit FLASH MEMORY
(7/17) IC2101 DV SIGNAL PROCESS
X2101 24.576MHz
L BUS
TRCK
LCK
(8/17) IC2102 DV INTERFACE
CN1005
TPA,NTPA
TPB,NTPB
JK-222 BOARD (2/5)
CN401
DV
MC BUS
AD DT
REC DT
REC CK
PB CK
ATFERR
FRRV/TRRV,TRRT
VSP SO,SI,SCK
PANEL G
PANEL R
PANEL B
PANEL R,G,B
HD,VD
BW Y
Y
C
DATA TO SFD
DATA FROM SFD
SFD BCK
(10/17) IC2301 USB I/F
AS DATA
MCLK
(10/17) IC2302 AUDIO A/D CONV.
L
R
C4-7
IC7001 CK
(11/17) IC2001 VIDEO A/D CONV.
SPCK
AFCK
USB+,-
SPCK (IC1704)
JK-222 BOARD (3/5)
CN1005
CN402
(USB)
X2901 48MHz
(5/17) IC2904 XTAL OSC
(5/17) IC2905 (1/2) DIGITAL STILL CONTROL
D0-15
A0-23
DSCK
HS TXD,RXD,SCK
ZOOM VR AD
FP-503 (FLEXIBLE)
CN1009
MSBS,DIO,SCLK
MEMORY STICK
ANALOG VIDEO SIGNAL
DIGITAL AUDIO SIGNAL
DIGITAL VIDEO SIGNAL
DIGITAL VIDEO/AUDIO SIGNAL
VIDEO/AUDIO/SERVO SIGNAL

COVER

3. BLOCK DIAGRAMS

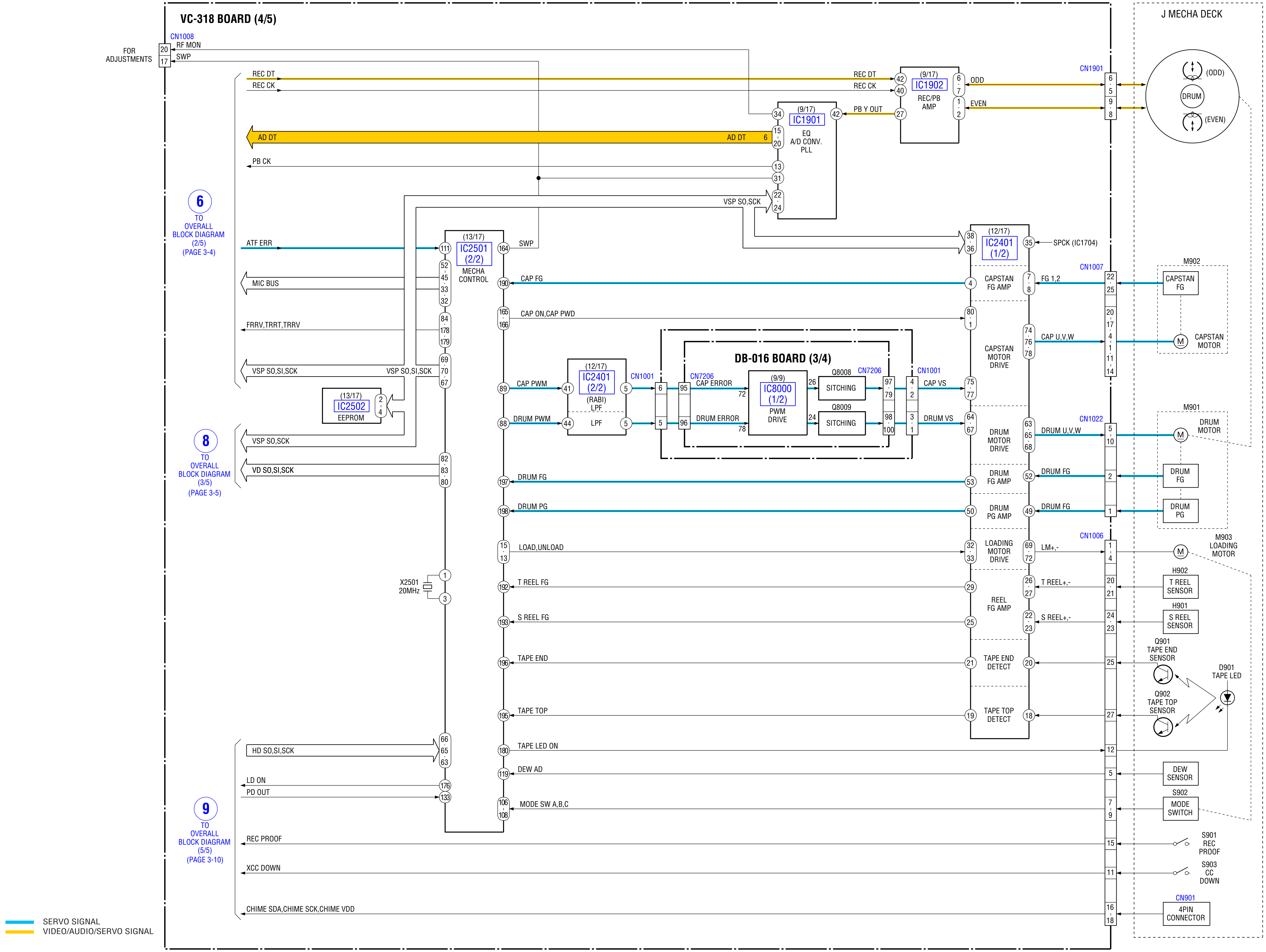
3-3. OVERALL BLOCK DIAGRAM (3/5)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-318 BOARD (3/5)
CN1024 CPC FOR ADJUSTMENTS
PANEL VG
PANEL COM
XHD OUT
CN1008 CPC FOR ADJUSTMENTS
EVF VCO
EVF VG
EVF LED DA
CN1003
CN5203
CN5202
CK-134 BOARD (1/3)
PANEL R,G,B
VD SO,SCK
HD
VD
CN5201
CN5204
SP901 SPEAKER
PD-191 BOARD (1/2)
CN5806
IC5701 RGB DRIVE
IC5702 TIMING GENERATOR
CN5701
VR,VG,VB
COM
LCD901 3.5 INCH LCD UNIT
HD OUT
BWM
PANEL 4.6V
BL ON
Q5801 Q5802
P UNREG
CN5805
INVERTER BLOCK
BACK LIGHT DRIVE
ND901 BACK LIGHT
CN5802
ANALOG VIDEO SIGNAL
ANALOG AUDIO SIGNAL
DIGITAL AUDIO SIGNAL
CN7211
(7/9) IC4201 RGB DRIVE
(7/9) IC4202 TIMING GENERATOR
BW Y
VD SO,SCK
HD
VD
VCO
G
LED DA
CN6101
LB-089 BOARD
CN6102
R,G,B
COM
LCD903 LCD UNIT
IC6101 Q6102 BACK LIGHT DRIVE
LED ON/OFF
D6102 BACK LIGHT
CN1001
CN7206
DB-016 BOARD (2/4)
PANEL R,G,B
BW Y
HD,VD
SP+,-
HD
VD
VCO
G
LED DA
VD SO,SCK
7 TO OVERALL BLOCK DIAGRAM (2/5) (PAGE 3-4)
DATA TO SFD
DATA FROM SFD
SFD BCK
Y
C
IC7001 CK
L
R
(6/9) IC7001 VIDEO IN/OUT
X7001 13.5MHz (PDX10) 17.7MHz (PDX10P)
8 TO OVERALL BLOCK DIAGRAM (4/5) (PAGE 3-7)
VD SO,SCK
VSP SO,SCK
(5/9) IC6201 AUDIO R-CH INPUT
(4/9) IC6001 AUDIO IN/PUT
(4/9) IC6004 AUDIO D/A CONV. A/D CONV.
2 TO OVERALL BLOCK DIAGRAM (1/5) (PAGE 3-2)
EXT STROBE ON
JK-222 BOARD (4/5)
CN7204
J401 S VIDEO
4 TO OVERALL BLOCK DIAGRAM (1/5) (PAGE 3-2)
INTELLIGENT ACCESSORY SHOE (1/2)
SHOE UNREG
SHOE MIC L
STBY ON/SHOE MIC R
FP-497 FLEXIBLE
CN7205
(3/9) IC6002 (1/2) XLR
IC6302 (1/3) (3/9) XLR
IC6002 (2/2) XLR
IC6302 (2/3) (3/9) XLR
(3/9) IC6301 MIC GAIN CONTROL
(3/9) IC6303 AMP
IC6302 (3/3) (3/9) XLR
J404 AUDIO/VIDEO
J403 (HEADPHONES)
HP L
HP R
MIC901 MIC L
MIC902 MIC R
J5901 MIC (PLUG IN POWER)
CN5901
CN5902
IC5901 MIC AMP
CN5904
MIC L
MIC R
SHOE MIC L
MA-425 BOARD (2/3)

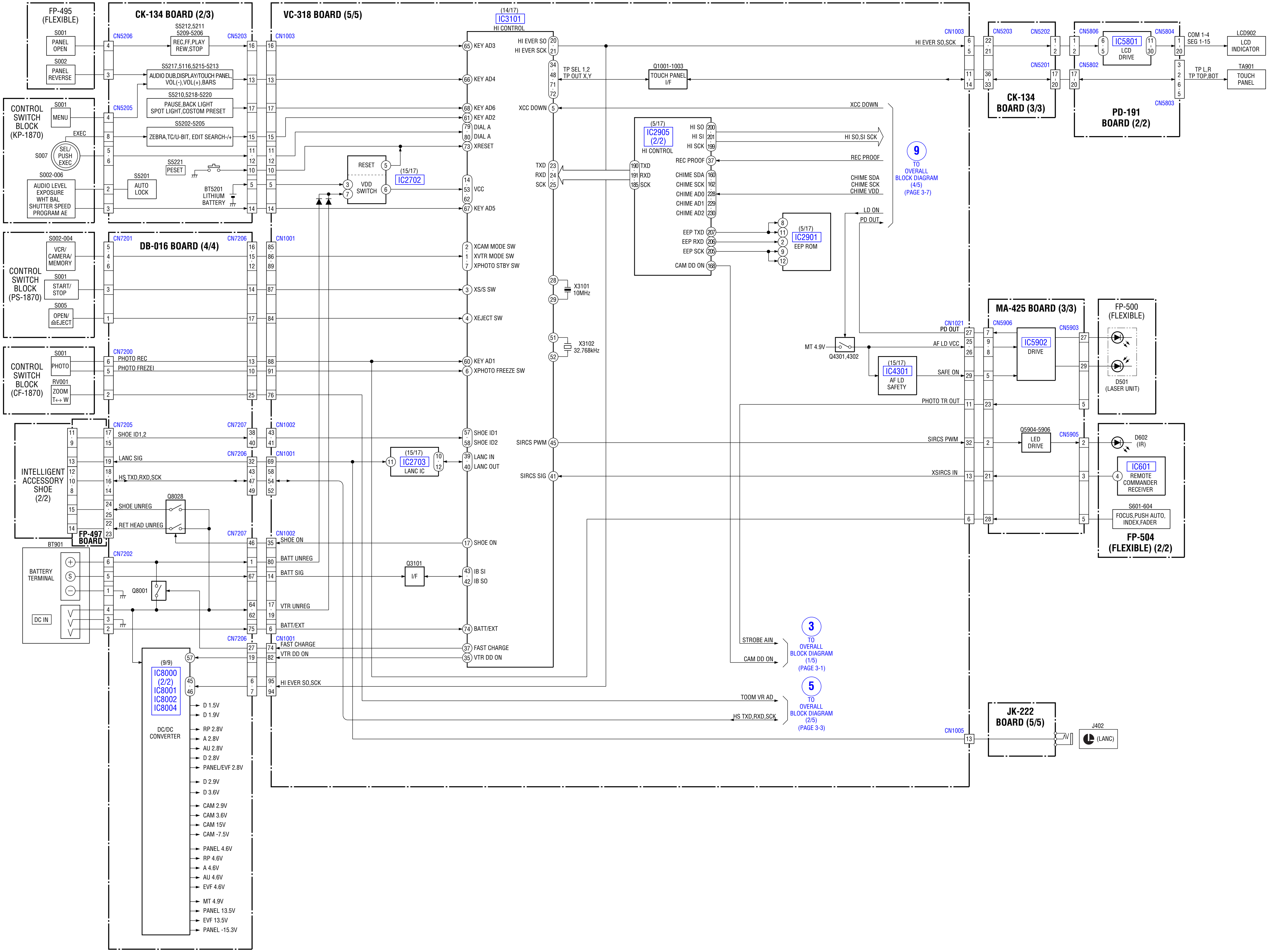
3-4. OVERALL BLOCK DIAGRAM (4/5)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-318 BOARD (4/5)
CN1008
RF MON
SWP
FOR ADJUSTMENTS
20
17
REC DT
REC CK
AD DT
PB CK
6 TO OVERALL BLOCK DIAGRAM (2/5) (PAGE 3-4)
ATF ERR
MIC BUS
FRRV,TRRT,TRRV
VSP SO,SI,SCK
8 TO OVERALL BLOCK DIAGRAM (3/5) (PAGE 3-5)
VSP SO,SCK
VD SO,SI,SCK
9 TO OVERALL BLOCK DIAGRAM (5/5) (PAGE 3-10)
HD SO,SI,SCK
LD ON
PD OUT
REC PROOF
XCC DOWN
CHIME SDA,CHIME SCK,CHIME VDD
(9/17) IC1902 REC/PB AMP
(9/17) IC1901 EQ A/D CONV. PLL
PB Y OUT
VSP SO,SCK
(13/17) IC2501 (2/2) MECHA CONTROL
SWP
CAP FG
CAP ON,CAP PWD
CAP PWM
DRUM PWM
DRUM FG
DRUM PG
LOAD,UNLOAD
T REEL FG
S REEL FG
TAPE END
TAPE TOP
TAPE LED ON
DEW AD
MODE SW A,B,C
(13/17) IC2502 EEPROM
X2501 20MHz
(12/17) IC2401 (2/2) (RABI) LPF
LPF
DB-016 BOARD (3/4)
CN1001
CN7206
CAP ERROR
DRUM ERROR
(9/9) IC8000 (1/2) PWM DRIVE
Q8008 SITCHING
Q8009 SITCHING
CAP VS
DRUM VS
(12/17) IC2401 (1/2)
SPCK (IC1704)
CAPSTAN FG AMP
CAPSTAN MOTOR DRIVE
DRUM MOTOR DRIVE
DRUM FG AMP
DRUM PG AMP
LOADING MOTOR DRIVE
REEL FG AMP
TAPE END DETECT
TAPE TOP DETECT
CN1901
ODD
EVEN
CN1007
FG 1,2
CAP U,V,W
CN1022
DRUM U,V,W
DRUM FG
CN1006
LM+,-
T REEL+,-
S REEL+,-
J MECHA DECK
(ODD)
DRUM
(EVEN)
M902
CAPSTAN FG
CAPSTAN MOTOR
M901
DRUM MOTOR
DRUM FG
DRUM PG
M903 LOADING MOTOR
H902 T REEL SENSOR
H901 S REEL SENSOR
Q901 TAPE END SENSOR
D901 TAPE LED
Q902 TAPE TOP SENSOR
DEW SENSOR
S902 MODE SWITCH
S901 REC PROOF
S903 CC DOWN
CN901 4PIN CONNECTOR
SERVO SIGNAL
VIDEO/AUDIO/SERVO SIGNAL

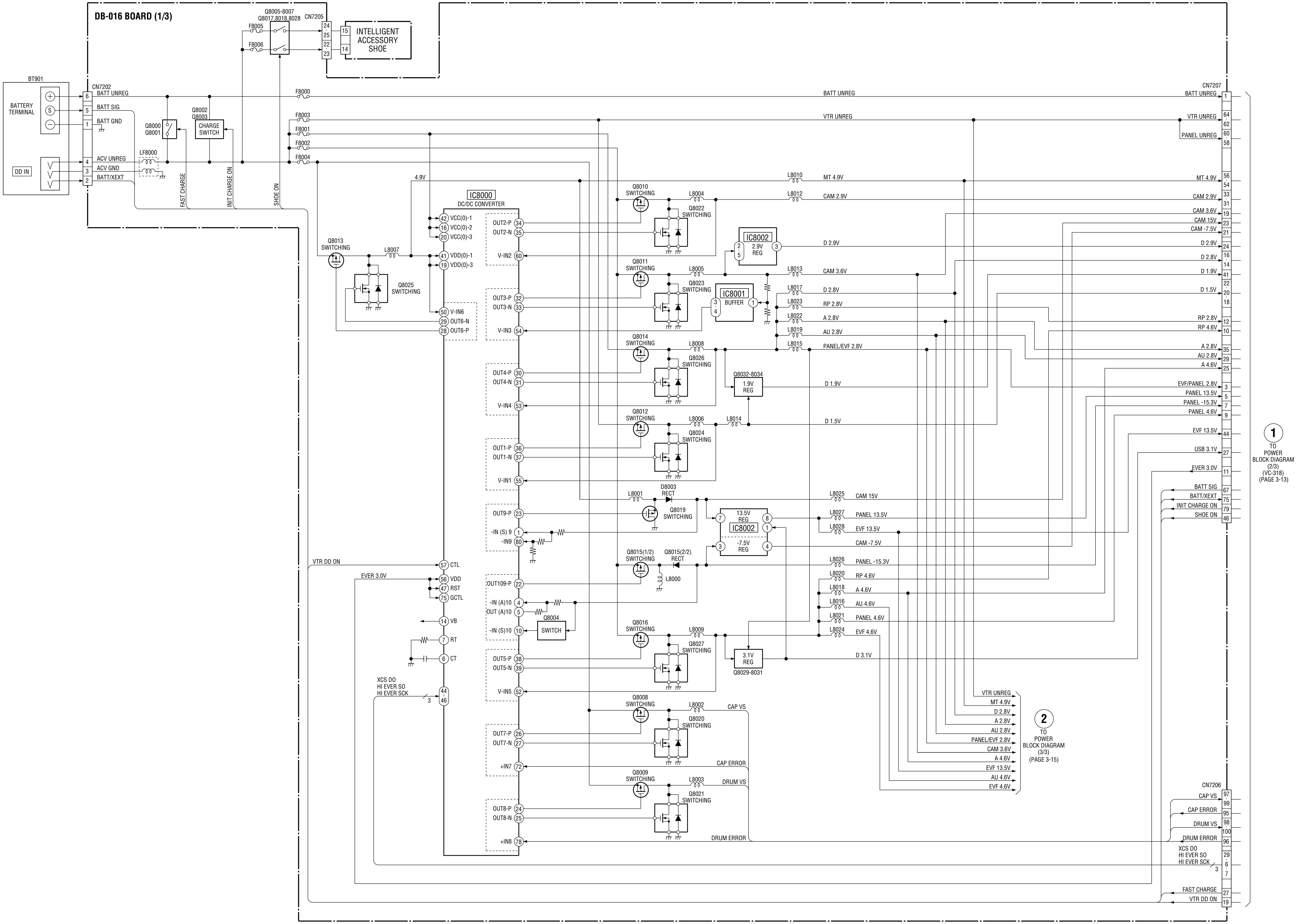
3-5. OVERALL BLOCK DIAGRAM (5/5)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


FP-495 (FLEXIBLE)
S001 PANEL OPEN
S002 PANEL REVERSE
CONTROL SWITCH BLOCK (KP-1870)
S001 MENU
EXEC
S007 SEL/ PUSH EXEC
S002-006
AUDIO LEVEL EXPOSURE WHT BAL SHUTTER SPEED PROGRAM AE
CK-134 BOARD (2/3)
CN5206
CN5203
CN5205
S5212,5211 5209-5206
REC,FF,PLAY REW,STOP
S5217,5116,5215-5213
AUDIO DUB,DISPLAY/TOUCH PANEL, VOL(-),VOL(+),BARS
S5210,5218-5220
PAUSE,BACK LIGHT SPOT LIGHT,COSTOM PRESET
S5202-5205
ZEBRA,TC/U-BIT, EDIT SEARCH-/+
S5221 PESET
S5201 AUTO LOCK
BT5201 LITHIUM BATTERY
CONTROL SWITCH BLOCK (PS-1870)
S002-004 VCR/ CAMERA/ MEMORY
S001 START/ STOP
S005 OPEN/ ⏏EJECT
DB-016 BOARD (4/4)
CN7201
CN7206
CN7200
PHOTO REC
PHOTO FREZEI
CONTROL SWITCH BLOCK (CF-1870)
S001 PHOTO
RV001 ZOOM T↔W
INTELLIGENT ACCESSORY SHOE (2/2)
FP-497 BOARD
CN7205
SHOE ID1,2
LANC SIG
HS TXD,RXD,SCK
Q8028
SHOE UNREG
RET HEAD UNREG
CN7207
CN7202
BT901
BATTERY TERMINAL
DC IN
Q8001
(9/9) IC8000 (2/2) IC8001 IC8002 IC8004
DC/DC CONVERTER
D 1.5V
D 1.9V
RP 2.8V
A 2.8V
AU 2.8V
D 2.8V
PANEL/EVF 2.8V
D 2.9V
D 3.6V
CAM 2.9V
CAM 3.6V
CAM 15V
CAM -7.5V
PANEL 4.6V
RP 4.6V
A 4.6V
AU 4.6V
EVF 4.6V
MT 4.9V
PANEL 13.5V
EVF 13.5V
PANEL -15.3V
VC-318 BOARD (5/5)
CN1003
CN1001
CN1002
(14/17) IC3101 HI CONTROL
KEY AD3
KEY AD4
KEY AD6
KEY AD2
DIAL A
DIAL A
XRESET
RESET
VDD SWITCH
(15/17) IC2702
VCC
KEY AD5
XCAM MODE SW
XVTR MODE SW
XPHOTO STBY SW
XS/S SW
XEJECT SW
KEY AD1
XPHOTO FREEZE SW
SHOE ID1
SHOE ID2
LANC IN
LANC OUT
(15/17) IC2703 LANC IC
SHOE ON
BATT UNREG
BATT SIG
Q3101 I/F
IB SI
IB SO
VTR UNREG
BATT/EXT
FAST CHARGE
VTR DD ON
HI EVER SO,SCK
HI EVER SO
HI EVER SCK
TP SEL 1,2
TP OUT X,Y
Q1001-1003 TOUCH PANEL I/F
XCC DOWN
(5/17) IC2905 (2/2) HI CONTROL
HI SO
HI SI
HI SCK
HI SO,SI SCK
REC PROOF
TXD
RXD
SCK
CHIME SDA
CHIME SCK
CHIME AD0
CHIME AD1
CHIME AD2
CHIME VDD
EEP TXD
EEP RXD
EEP SCK
CAM DD ON
(5/17) IC2901 EEP ROM
LD ON
PD OUT
X3101 10MHz
X3102 32.768kHz
SIRCS PWM
SIRCS SIG
9 TO OVERALL BLOCK DIAGRAM (4/5) (PAGE 3-7)
MT 4.9V
Q4301,4302
(15/17) IC4301 AF LD SAFETY
AF LD VCC
SAFE ON
PHOTO TR OUT
XSIRCS IN
STROBE AIN
CAM DD ON
3 TO OVERALL BLOCK DIAGRAM (1/5) (PAGE 3-1)
TOOM VR AD
HS TXD,RXD,SCK
5 TO OVERALL BLOCK DIAGRAM (2/5) (PAGE 3-3)
CN1021
CN1005
CK-134 BOARD (3/3)
CN5203
CN5202
CN5201
PD-191 BOARD (2/2)
CN5806
CN5804
CN5802
CN5803
IC5801 LCD DRIVE
COM 1-4 SEG 1-15
LCD902 LCD INDICATOR
TP L,R TP TOP,BOT
TA901 TOUCH PANEL
MA-425 BOARD (3/3)
CN5906
CN5903
CN5905
IC5902 DRIVE
Q5904-5906 LED DRIVE
FP-500 (FLEXIBLE)
D501 (LASER UNIT)
D602 (IR)
IC601 REMOTE COMMANDER RECEIVER
S601-604 FOCUS,PUSH AUTO, INDEX,FADER
FP-504 (FLEXIBLE) (2/2)
JK-222 BOARD (5/5)
J402 (LANC)

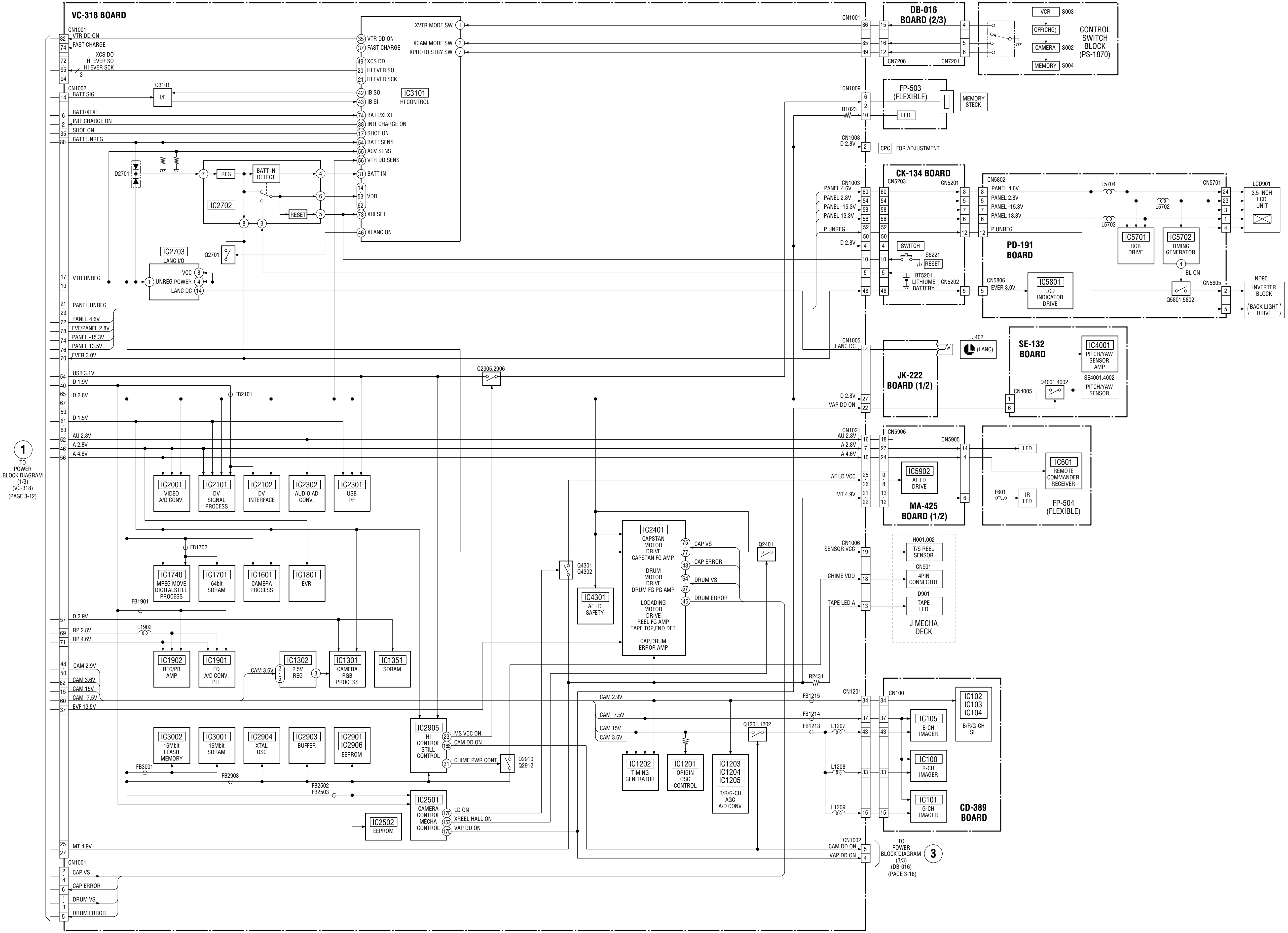
3-6. POWER BLOCK DIAGRAM (1/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


DB-016 BOARD (1/3)
BT901
BATTERY TERMINAL
DD IN
CN7202
BATT UNREG
BATT SIG
BATT GND
ACV UNREG
ACV GND
BATT/XEXT
LF8000
Q8000 Q8001
Q8002 Q8003
CHARGE SWITCH
FAST CHARGE
INIT CHARGE ON
SHOE ON
Q8005-8007 Q8017,8018,8028
CN7205
F8005
F8006
INTELLIGENT ACCESSORY SHOE
F8000
F8003
F8001
F8002
F8004
VTR UNREG
4.9V
Q8013 SWITCHING
L8007
Q8025 SWITCHING
IC8000
DC/DC CONVERTER
VCC(0)-1
VCC(0)-2
VCC(0)-3
VDD(0)-1
VDD(0)-3
V-IN6
OUT6-N
OUT6-P
OUT2-P
OUT2-N
V-IN2
OUT3-P
OUT3-N
V-IN3
OUT4-P
OUT4-N
V-IN4
OUT1-P
OUT1-N
V-IN1
OUT9-P
-IN (S) 9
-IN9
OUT109-P
-IN (A)10
OUT (A)10
-IN (S)10
OUT5-P
OUT5-N
V-IN5
OUT7-P
OUT7-N
+IN7
OUT8-P
OUT8-N
+IN8
VTR DD ON
CTL
EVER 3.0V
VDD
RST
GCTL
VB
RT
CT
XCS DO
HI EVER SO
HI EVER SCK
Q8004 SWITCH
Q8010 SWITCHING
Q8022 SWITCHING
L8004
Q8011 SWITCHING
Q8023 SWITCHING
L8005
Q8014 SWITCHING
Q8026 SWITCHING
L8008
Q8012 SWITCHING
Q8024 SWITCHING
L8006
L8014
L8001
D8003 RECT
Q8019 SWITCHING
Q8015(1/2) SWITCHING
Q8015(2/2) RECT
L8000
Q8016 SWITCHING
Q8027 SWITCHING
L8009
Q8008 SWITCHING
Q8020 SWITCHING
L8002
CAP VS
CAP ERROR
Q8009 SWITCHING
Q8021 SWITCHING
L8003
DRUM VS
DRUM ERROR
IC8002 2.9V REG
IC8001 BUFFER
Q8032-8034 1.9V REG
13.5V REG
IC8002
-7.5V REG
3.1V REG
Q8029-8031
L8010 MT 4.9V
L8012 CAM 2.9V
D 2.9V
L8013 CAM 3.6V
L8017 D 2.8V
L8023 RP 2.8V
L8022 A 2.8V
L8019 AU 2.8V
L8015 PANEL/EVF 2.8V
D 1.9V
D 1.5V
L8025 CAM 15V
L8027 PANEL 13.5V
L8028 EVF 13.5V
CAM -7.5V
L8026 PANEL -15.3V
L8020 RP 4.6V
L8018 A 4.6V
L8016 AU 4.6V
L8021 PANEL 4.6V
L8024 EVF 4.6V
D 3.1V
CN7207
BATT UNREG
VTR UNREG
PANEL UNREG
MT 4.9V
CAM 2.9V
CAM 3.6V
CAM 15V
CAM -7.5V
D 2.9V
D 2.8V
D 1.9V
D 1.5V
RP 2.8V
RP 4.6V
A 2.8V
AU 2.8V
A 4.6V
EVF/PANEL 2.8V
PANEL 13.5V
PANEL -15.3V
PANEL 4.6V
EVF 13.5V
USB 3.1V
EVER 3.0V
BATT SIG
BATT/XEXT
INIT CHARGE ON
SHOE ON
①
TO POWER BLOCK DIAGRAM (2/3) (VC-318) (PAGE 3-13)
VTR UNREG
MT 4.9V
D 2.8V
A 2.8V
AU 2.8V
PANEL/EVF 2.8V
CAM 3.6V
A 4.6V
EVF 13.5V
AU 4.6V
EVF 4.6V
②
TO POWER BLOCK DIAGRAM (3/3) (PAGE 3-15)
CN7206
CAP VS
CAP ERROR
DRUM VS
DRUM ERROR
XCS DO
HI EVER SO
HI EVER SCK
FAST CHARGE
VTR DD ON

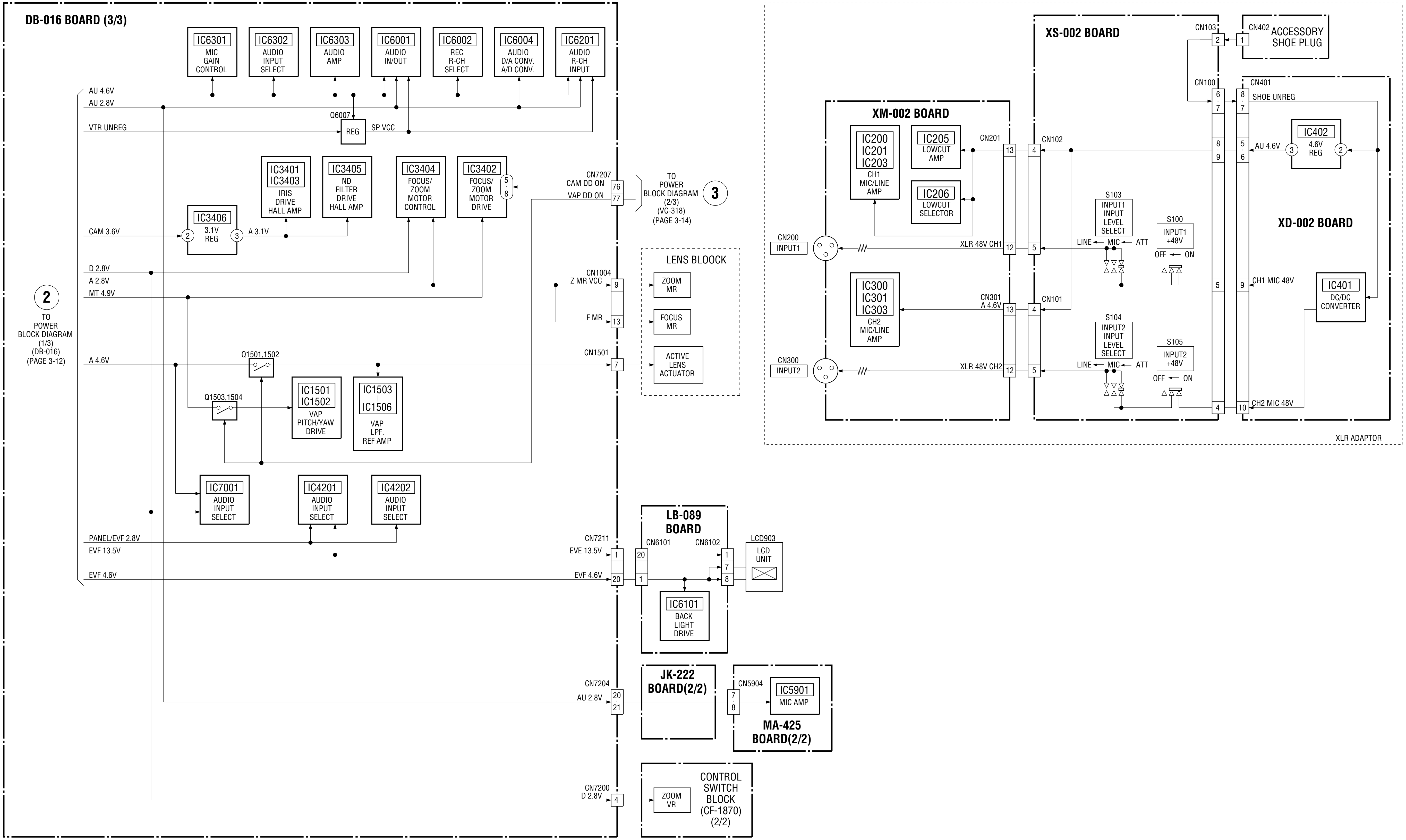
3-7. POWER BLOCK DIAGRAM (2/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VC-318 BOARD
CN1001
VTR DD ON
FAST CHARGE
XCS DO
HI EVER SO
HI EVER SCK
CN1002
BATT SIG
Q3101
I/F
BATT/XEXT
INIT CHARGE ON
SHOE ON
BATT UNREG
D2701
REG
BATT IN DETECT
IC2702
RESET
IC2703
LANC I/O
Q2701
VCC
UNREG POWER
LANC DC
VTR UNREG
PANEL UNREG
PANEL 4.6V
EVF/PANEL 2.8V
PANEL -15.3V
PANEL 13.5V
EVER 3.0V
USB 3.1V
D 1.9V
D 2.8V
D 1.5V
AU 2.8V
A 2.8V
A 4.6V
XVTR MODE SW
XCAM MODE SW
XPHOTO STBY SW
VTR DD ON
FAST CHARGE
XCS DD
HI EVER SO
HI EVER SCK
IB SO
IB SI
IC3101
HI CONTROL
BATT/XEXT
INIT CHARGE ON
SHOE ON
BATT SENS
ACV SENS
VTR DD SENS
BATT IN
VDD
XRESET
XLANC ON
Q2905,2906
FB2101
IC2001 VIDEO A/D CONV.
IC2101 DV SIGNAL PROCESS
IC2102 DV INTERFACE
IC2302 AUDIO AD CONV.
IC2301 USB I/F
FB1702
IC1740 MPEG MOVE DIGITALSTILL PROCESS
IC1701 64bit SDRAM
IC1601 CAMERA PROCESS
IC1801 EVR
FB1901
D 2.9V
RP 2.8V
RP 4.6V
L1902
IC1902 REC/PB AMP
IC1901 EQ A/D CONV. PLL
CAM 3.6V
IC1302 2.5V REG
IC1301 CAMERA RGB PROCESS
IC1351 SDRAM
CAM 2.9V
CAM 3.6V
CAM 15V
CAM -7.5V
EVF 13.5V
IC3002 16Mbit FLASH MEMORY
IC3001 16Mbit SDRAM
IC2904 XTAL OSC
IC2903 BUFFER
IC2901 IC2906 EEPROM
FB3001
FB2903
FB2502
FB2503
IC2905 HI CONTROL STILL CONTROL
MS VCC ON
CAM DD ON
CHIME PWR CONT
Q2910 Q2912
IC2502 EEPROM
IC2501 CAMERA CONTROL MECHA CONTROL
LD ON
XREEL HALL ON
VAP DD ON
MT 4.9V
CAP VS
CAP ERROR
DRUM VS
DRUM ERROR
Q4301 Q4302
IC4301 AF LD SAFETY
IC2401 CAPSTAN MOTOR DRIVE CAPSTAN FG AMP
DRUM MOTOR DRIVE DRUM FG PG AMP
LODADING MOTOR DRIVE REEL FG AMP TAPE TOP,END DET
CAP,DRUM ERROR AMP
CAP VS
CAP ERROR
DRUM VS
DRUM ERROR
Q2401
R2431
CAM 2.9V
CAM -7.5V
CAM 15V
CAM 3.6V
IC1202 TIMING GENERATOR
IC1201 ORIGIN OSC CONTROL
IC1203 IC1204 IC1205 B/R/G-CH AGC A/D CONV
Q1201,1202
① TO POWER BLOCK DIAGRAM (1/3) (VC-318) (PAGE 3-12)
CN1001
DB-016 BOARD (2/3)
CN7206
CN7201
VCR S003
OFF(CHG)
CAMERA S002
MEMORY S004
CONTROL SWITCH BLOCK (PS-1870)
CN1009
R1023
FP-503 (FLEXIBLE)
LED
MEMORY STECK
CN1008
D 2.8V
CPC FOR ADJUSTMENT
CN1003
CK-134 BOARD
CN5203
CN5201
SWITCH
S5221
RESET
BT5201 LITHIUME BATTERY
CN5202
CN5802
PANEL 4.6V
PANEL 2.8V
PANEL -15.3V
PANEL 13.3V
P UNREG
D 2.8V
L5704
L5702
L5703
CN5701
LCD901
3.5 INCH LCD UNIT
IC5701 RGB DRIVE
IC5702 TIMING GENERATOR
PD-191 BOARD
BL ON
CN5806
EVER 3.0V
IC5801 LCD INDICATOR DRIVE
Q5801,5802
CN5805
ND901
INVERTER BLOCK
(BACK LIGHT DRIVE)
CN1005
LANC DC
JK-222 BOARD (1/2)
J402
(LANC)
SE-132 BOARD
IC4001 PITCH/YAW SENSOR AMP
SE4001,4002 PITCH/YAW SENSOR
CN4005
Q4001,4002
D 2.8V
VAP DD ON
CN1021
AU 2.8V
A 2.8V
A 4.6V
AF LD VCC
MT 4.9V
CN5906
CN5905
IC5902 AF LD DRIVE
MA-425 BOARD (1/2)
LED
IC601 REMOTE COMMANDER RECEIVER
F601
IR LED
FP-504 (FLEXIBLE)
CN1006
SENSOR VCC
CHIME VDD
TAPE LED A
H001,002 T/S REEL SENSOR
CN901 4PIN CONNECTOT
D901 TAPE LED
J MECHA DECK
CN1201
FB1215
FB1214
FB1213
L1207
L1208
L1209
CN100
IC102 IC103 IC104 B/R/G-CH SH
IC105 B-CH IMAGER
IC100 R-CH IMAGER
IC101 G-CH IMAGER
CD-389 BOARD
CN1002
CAM DD ON
VAP DD ON
TO POWER BLOCK DIAGRAM (3/3) (DB-016) (PAGE 3-16) ③

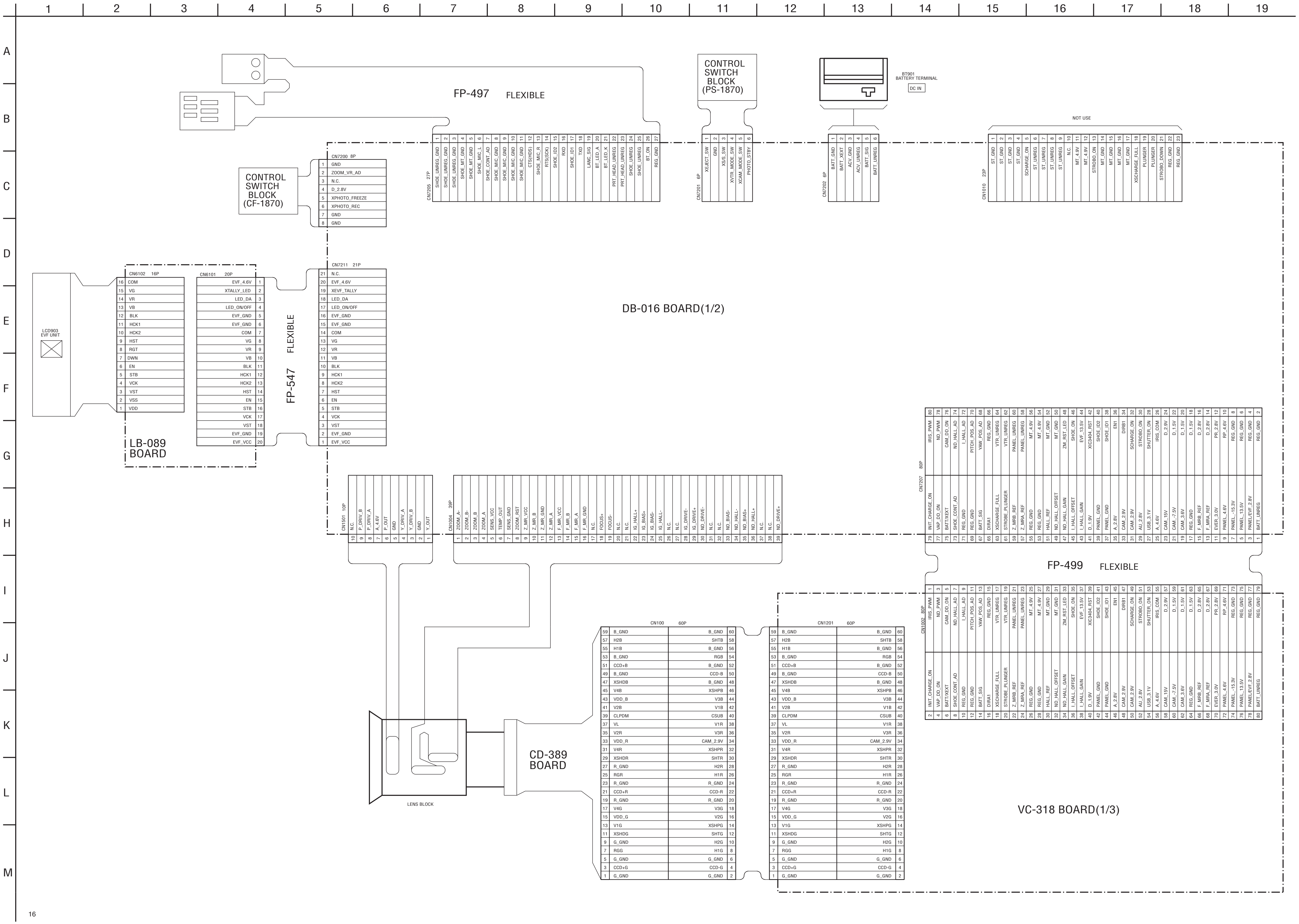
3-8. POWER BLOCK DIAGRAM (3/3)

( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

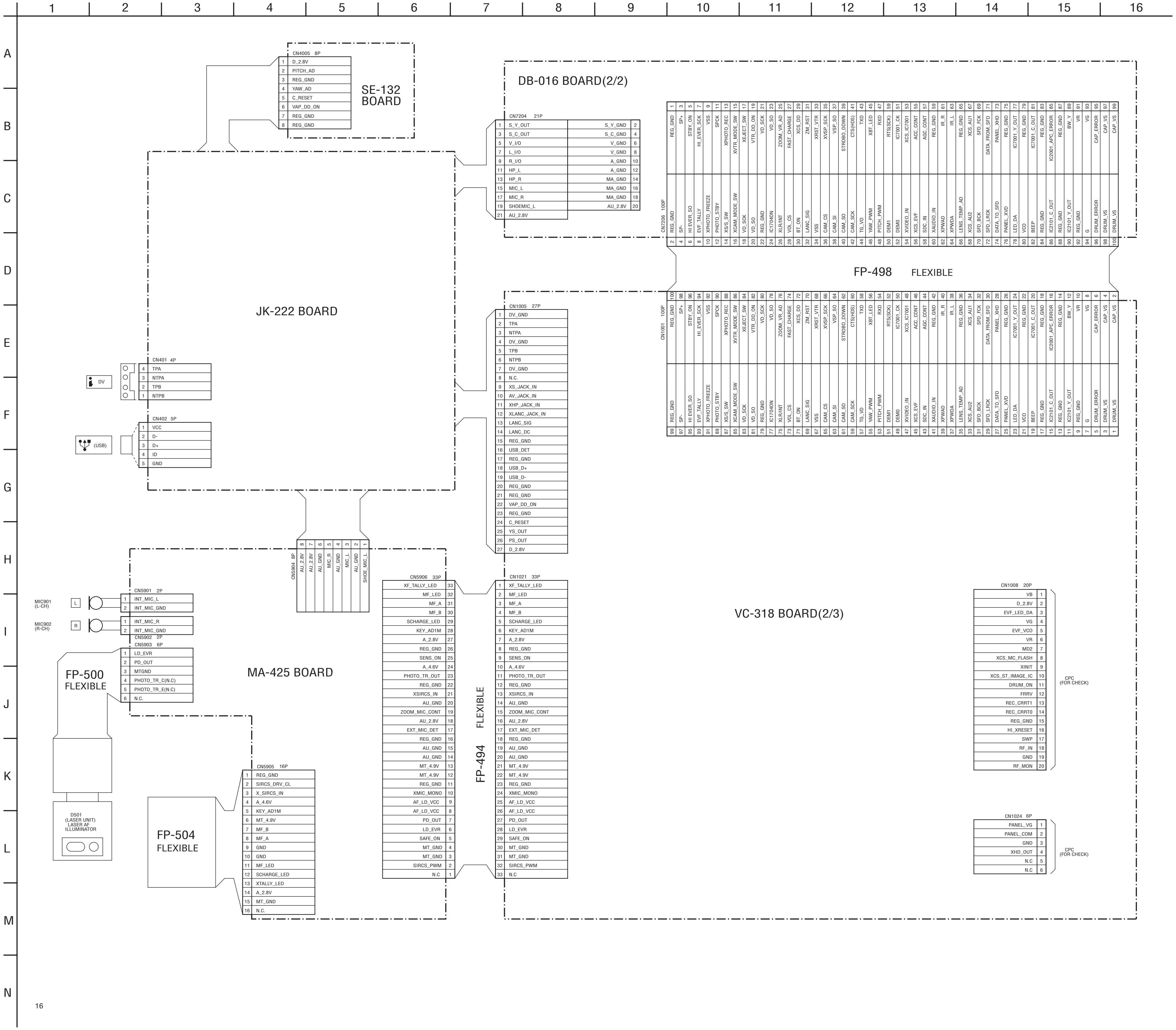

DB-016 BOARD (3/3)
IC6301 MIC GAIN CONTROL
IC6302 AUDIO INPUT SELECT
IC6303 AUDIO AMP
IC6001 AUDIO IN/OUT
IC6002 REC R-CH SELECT
IC6004 AUDIO D/A CONV. A/D CONV.
IC6201 AUDIO R-CH INPUT
AU 4.6V
AU 2.8V
Q6007
REG
SP VCC
VTR UNREG
IC3401 IC3403 IRIS DRIVE HALL AMP
IC3405 ND FILTER DRIVE HALL AMP
IC3404 FOCUS/ ZOOM MOTOR CONTROL
IC3402 FOCUS/ ZOOM MOTOR DRIVE
5
8
CN7207
CAM DD ON
VAP DD ON
76
77
TO POWER BLOCK DIAGRAM (2/3) (VC-318) (PAGE 3-14)
3
IC3406 3.1V REG
CAM 3.6V
2
3
A 3.1V
D 2.8V
A 2.8V
MT 4.9V
2
TO POWER BLOCK DIAGRAM (1/3) (DB-016) (PAGE 3-12)
CN1004
Z MR VCC
9
F MR
13
LENS BLOOCK
ZOOM MR
FOCUS MR
CN1501
A 4.6V
7
ACTIVE LENS ACTUATOR
Q1501,1502
Q1503,1504
IC1501 IC1502 VAP PITCH/YAW DRIVE
IC1503 | IC1506 VAP LPF. REF AMP
IC7001 AUDIO INPUT SELECT
IC4201 AUDIO INPUT SELECT
IC4202 AUDIO INPUT SELECT
PANEL/EVF 2.8V
EVF 13.5V
EVF 4.6V
CN7211
EVE 13.5V
EVF 4.6V
1
20
LB-089 BOARD
CN6101
CN6102
20
1
1
7
8
LCD903
LCD UNIT
IC6101 BACK LIGHT DRIVE
CN7204
AU 2.8V
20
21
JK-222 BOARD(2/2)
CN5904
7
8
IC5901 MIC AMP
MA-425 BOARD(2/2)
CN7200
D 2.8V
4
ZOOM VR
CONTROL SWITCH BLOCK (CF-1870) (2/2)
XS-002 BOARD
CN103
2
1
CN402
ACCESSORY SHOE PLUG
CN100
6
7
8
7
CN401
SHOE UNREG
XM-002 BOARD
IC200 IC201 IC203 CH1 MIC/LINE AMP
IC205 LOWCUT AMP
IC206 LOWCUT SELECTOR
CN201
13
4
CN102
8
9
5
6
AU 4.6V
IC402 4.6V REG
3
2
S103 INPUT1 INPUT LEVEL SELECT
LINE
MIC
ATT
S100 INPUT1 +48V
OFF
ON
XD-002 BOARD
CN200 INPUT1
XLR 48V CH1
12
5
5
9
CH1 MIC 48V
IC401 DC/DC CONVERTER
IC300 IC301 IC303 CH2 MIC/LINE AMP
CN301
A 4.6V
13
4
CN101
S104 INPUT2 INPUT LEVEL SELECT
LINE
MIC
ATT
S105 INPUT2 +48V
OFF
ON
CN300 INPUT2
XLR 48V CH2
12
5
4
10
CH2 MIC 48V
XLR ADAPTOR

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

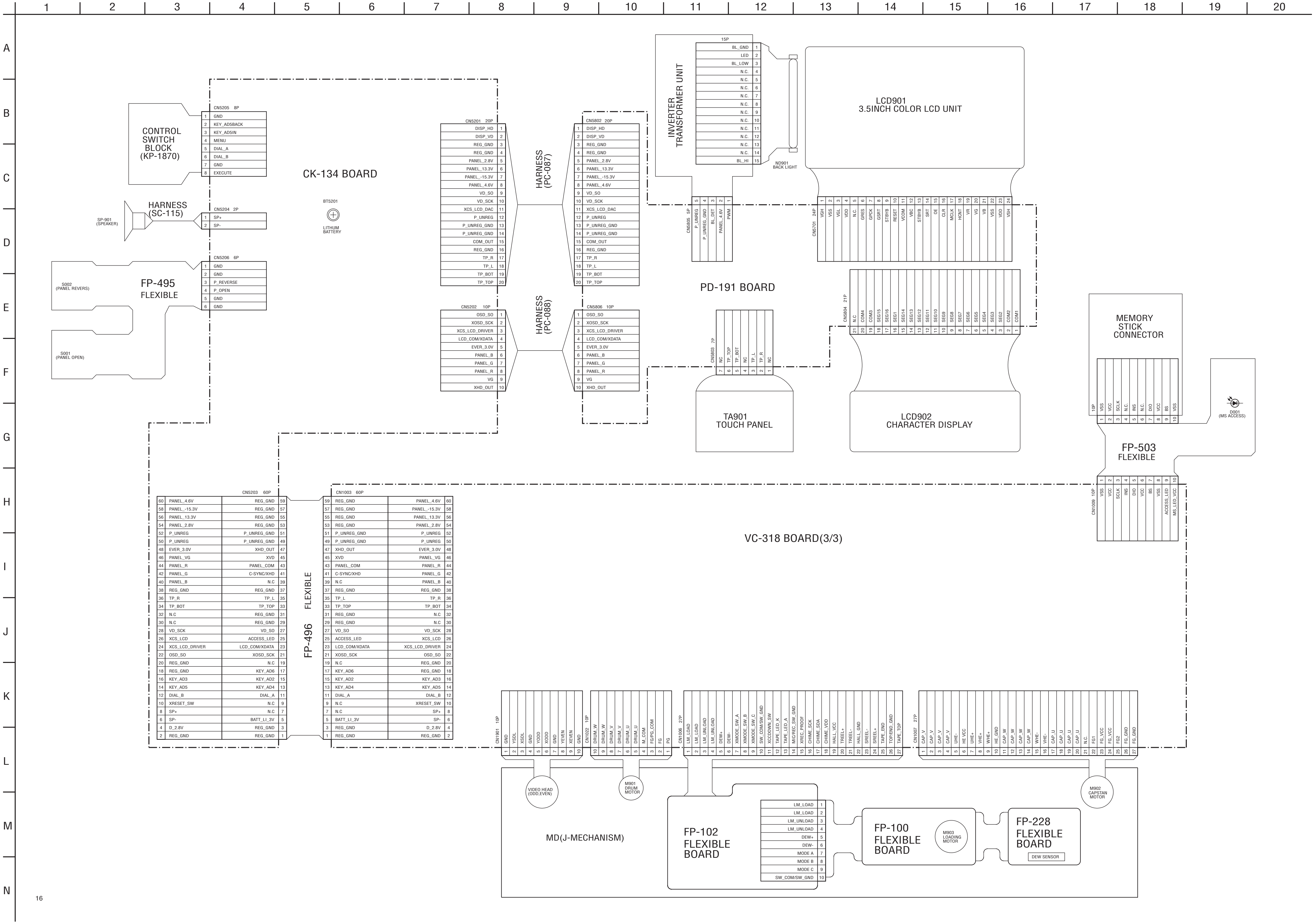
4-1. FRAME SCHEMATIC DIAGRAM (1/4)


FP-497 FLEXIBLE
CONTROL SWITCH BLOCK (PS-1870)
BT901 BATTERY TERMINAL
DC IN
NOT USE
CN7200 8P
GND
ZOOM_VR_AD
N.C.
D_2.8V
XPHOTO_FREEZE
XPHOTO_REC
GND
GND
CONTROL SWITCH BLOCK (CF-1870)
CN7205 27P
CN7201 6P
XEJECT_SW
GND
XS/S_SW
XVTR_MODE_SW
XCAM_MODE_SW
PHOTO_STBY
CN7202 6P
BATT_GND
BATT_XEXT
ACV_GND
ACV_UNREG
BATT_SIG
BATT_UNREG
CN1010 23P
DB-016 BOARD(1/2)
CN7211 21P
CN6102 16P
CN6101 20P
LCD903 EVF UNIT
FP-547 FLEXIBLE
LB-089 BOARD
CN1501 10P
CN1004 39P
CN7207 80P
FP-499 FLEXIBLE
CN1002 80P
CN100 60P
CN1201 60P
LENS BLOCK
CD-389 BOARD
VC-318 BOARD(1/3)
A B C D E F G H I J K L M
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
16

FRAME SCHEMATIC DIAGRAM (2/4)

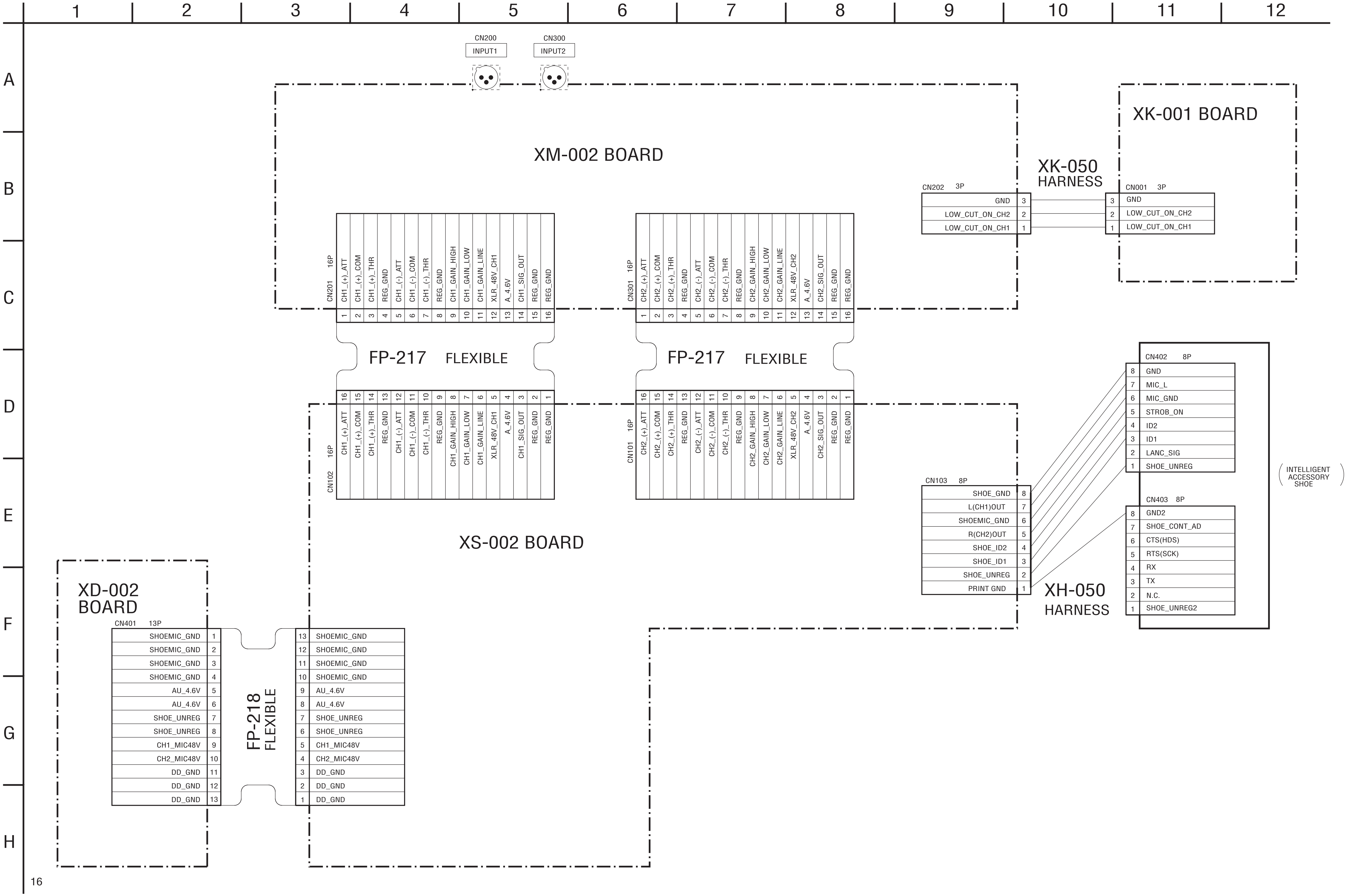

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K L M N
SE-132 BOARD
CN4005 8P
1 D_2.8V
2 PITCH_AD
3 REG_GND
4 YAW_AD
5 C_RESET
6 VAP_DD_ON
7 REG_GND
8 REG_GND
DB-016 BOARD(2/2)
CN7204 21P
1 S_Y_OUT
3 S_C_OUT
5 V_I/O
7 L_I/O
9 R_I/O
11 HP_L
13 HP_R
15 MIC_L
17 MIC_R
19 SHOEMIC_L
21 AU_2.8V
S_Y_GND 2
S_C_GND 4
V_GND 6
V_GND 8
A_GND 10
A_GND 12
MA_GND 14
MA_GND 16
MA_GND 18
AU_2.8V 20
CN7206 100P
CN1001 100P
FP-498 FLEXIBLE
JK-222 BOARD
CN401 4P
4 TPA
3 NTPA
2 TPB
1 NTPB
DV
CN402 5P
1 VCC
2 D-
3 D+
4 ID
5 GND
(USB)
CN1005 27P
1 DV_GND
2 TPA
3 NTPA
4 DV_GND
5 TPB
6 NTPB
7 DV_GND
8 N.C.
9 XS_JACK_IN
10 AV_JACK_IN
11 XHP_JACK_IN
12 XLANC_JACK_IN
13 LANC_SIG
14 LANC_DC
15 REG_GND
16 USB_DET
17 REG_GND
18 USB_D+
19 USB_D-
20 REG_GND
21 REG_GND
22 VAP_DD_ON
23 REG_GND
24 C_RESET
25 YS_OUT
26 PS_OUT
27 D_2.8V
CN5904 8P
8 AU_2.8V
7 AU_2.8V
6 AU_GND
5 MIC_R
4 AU_GND
3 MIC_L
2 AU_GND
1 SHOE_MIC_L
MIC901 (L-CH)
MIC902 (R-CH)
L
R
CN5901 2P
1 INT_MIC_L
2 INT_MIC_GND
CN5902 2P
1 INT_MIC_R
2 INT_MIC_GND
CN5903 6P
1 LD_EVR
2 PD_OUT
3 MTGND
4 PHOTO_TR_C(N.C)
5 PHOTO_TR_E(N.C)
6 N.C.
FP-500 FLEXIBLE
MA-425 BOARD
D501 (LASER UNIT) LASER AF ILLUMINATOR
FP-504 FLEXIBLE
CN5905 16P
1 REG_GND
2 SIRCS_DRV_CL
3 X_SIRCS_IN
4 A_4.6V
5 KEY_AD1M
6 MT_4.9V
7 MF_B
8 MF_A
9 GND
10 GND
11 MF_LED
12 SCHARGE_LED
13 XTALLY_LED
14 A_2.8V
15 MT_GND
16 N.C.
CN5906 33P
XF_TALLY_LED 33
MF_LED 32
MF_A 31
MF_B 30
SCHARGE_LED 29
KEY_AD1M 28
A_2.8V 27
REG_GND 26
SENS_ON 25
A_4.6V 24
PHOTO_TR_OUT 23
REG_GND 22
XSIRCS_IN 21
AU_GND 20
ZOOM_MIC_CONT 19
AU_2.8V 18
EXT_MIC_DET 17
REG_GND 16
AU_GND 15
AU_GND 14
MT_4.9V 13
MT_4.9V 12
REG_GND 11
XMIC_MONO 10
AF_LD_VCC 9
AF_LD_VCC 8
PD_OUT 7
LD_EVR 6
SAFE_ON 5
MT_GND 4
MT_GND 3
SIRCS_PWM 2
N.C 1
FP-494 FLEXIBLE
CN1021 33P
1 XF_TALLY_LED
2 MF_LED
3 MF_A
4 MF_B
5 SCHARGE_LED
6 KEY_AD1M
7 A_2.8V
8 REG_GND
9 SENS_ON
10 A_4.6V
11 PHOTO_TR_OUT
12 REG_GND
13 XSIRCS_IN
14 AU_GND
15 ZOOM_MIC_CONT
16 AU_2.8V
17 EXT_MIC_DET
18 REG_GND
19 AU_GND
20 AU_GND
21 MT_4.9V
22 MT_4.9V
23 REG_GND
24 XMIC_MONO
25 AF_LD_VCC
26 AF_LD_VCC
27 PD_OUT
28 LD_EVR
29 SAFE_ON
30 MT_GND
31 MT_GND
32 SIRCS_PWM
33 N.C
VC-318 BOARD(2/3)
CN1008 20P
VB 1
D_2.8V 2
EVF_LED_DA 3
VG 4
EVF_VCO 5
VR 6
MD2 7
XCS_MC_FLASH 8
XINIT 9
XCS_ST_IMAGE_IC 10
DRUM_ON 11
FRRV 12
REC_CRRT1 13
REC_CRRT0 14
REG_GND 15
HI_XRESET 16
SWP 17
RF_IN 18
GND 19
RF_MON 20
CPC (FOR CHECK)
CN1024 6P
PANEL_VG 1
PANEL_COM 2
GND 3
XHD_OUT 4
N.C 5
N.C 6
CPC (FOR CHECK)
16

FRAME SCHEMATIC DIAGRAM (3/4)



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N
CONTROL SWITCH BLOCK (KP-1870)
CN5205 8P
GND
KEY_AD5BACK
KEY_AD5IN
MENU
DIAL_A
DIAL_B
GND
EXECUTE
SP-901 (SPEAKER)
HARNESS (SC-115)
CN5204 2P
SP+
SP-
CK-134 BOARD
BT5201
LITHIUM BATTERY
S002 (PANEL REVERS)
FP-495 FLEXIBLE
S001 (PANEL OPEN)
CN5206 6P
GND
GND
P_REVERSE
P_OPEN
GND
GND
CN5201 20P
HARNESS (PC-087)
CN5802 20P
DISP_HD
DISP_VD
REG_GND
REG_GND
PANEL_2.8V
PANEL_13.3V
PANEL_-15.3V
PANEL_4.6V
VD_SO
VD_SCK
XCS_LCD_DAC
P_UNREG
P_UNREG_GND
P_UNREG_GND
COM_OUT
REG_GND
TP_R
TP_L
TP_BOT
TP_TOP
CN5202 10P
HARNESS (PC-088)
CN5806 10P
OSD_SO
XOSD_SCK
XCS_LCD_DRIVER
LCD_COM/XDATA
EVER_3.0V
PANEL_B
PANEL_G
PANEL_R
VG
XHD_OUT
INVERTER TRANSFORMER UNIT
15P
BL_GND
LED
BL_LOW
N.C.
BL_HI
ND901 BACK LIGHT
LCD901 3.5INCH COLOR LCD UNIT
CN5805 5P
P_UNREG
P_UNREG_GND
BL_HI
PANEL_4.6V
PWM
CN5701 24P
VGH VSS VGL VDD N.C. GRES GPCK GSRT STBYB RESET VCOM VBC STBYB SRT OE CLR MCLK HCNT VR VG VB VSS VDD VGH
PD-191 BOARD
CN5804 21P
N.C. COM4 COM3 SEG15 SEG16 SEG1 SEG14 SEG13 SEG12 SEG11 SEG10 SEG9 SEG8 SEG7 SEG6 SEG5 SEG4 SEG3 SEG2 COM2 COM1
CN5803 7P
NC TP_TOP TP_BOT NC TP_L TP_R NC
TA901 TOUCH PANEL
LCD902 CHARACTER DISPLAY
MEMORY STICK CONNECTOR
10P
VSS VCC SCLK N.C. INS N.C. DIO VCC BS VSS
D001 (MS ACCESS)
FP-503 FLEXIBLE
CN1009 10P
VSS VCC SCLK INS DIO VCC BS VSS ACCESS_LED MS_LED_VCC
CN5203 60P
FP-496 FLEXIBLE
CN1003 60P
PANEL_4.6V
PANEL_-15.3V
PANEL_13.3V
PANEL_2.8V
P_UNREG
P_UNREG_GND
EVER_3.0V
XHD_OUT
PANEL_VG
XVD
PANEL_R
PANEL_COM
PANEL_G
C-SYNC/XHD
PANEL_B
N.C
REG_GND
TP_R
TP_L
TP_BOT
TP_TOP
VD_SCK
VD_SO
XCS_LCD
ACCESS_LED
XCS_LCD_DRIVER
LCD_COM/XDATA
OSD_SO
XOSD_SCK
KEY_AD6
KEY_AD3
KEY_AD2
KEY_AD5
KEY_AD4
DIAL_B
DIAL_A
XRESET_SW
SP+
SP-
BATT_LI_3V
D_2.8V
VC-318 BOARD(3/3)
CN1001 10P
GND YSDL XSDL GND YODD XODD GND YEVEN XEVEN GND
CN1002 10P
DRUM_W DRUM_W DRUM_V DRUM_V DRUM_U DRUM_U M_COM FG/PG_COM FG PG
CN1006 27P
LM_LOAD LM_LOAD LM_UNLOAD LM_UNLOAD DEW+ DEW- XMODE_SW_A XMODE_SW_B XMODE_SW_C SW_COM/SW_GND XCC DOWN_SW TAPE_LED_K TAPE_LED_A MIC/REC_SW_GND XREC_PROOF CHIME_SCK CHIME_SDA CHIME_VDD HALL_VCC TREEL+ TREEL- HALL_GND SREEL- SREEL+ TAPE_END TOP/END_GND TAPE_TOP
CN1007 27P
CAP_V CAP_V CAP_V UHE- UHE+ HE_VCC VHE- VHE+ WHE+ HE_GND CAP_W CAP_W CAP_W WHE- VHE- CAP_U CAP_U CAP_U N.C. FG1 FG_VCC FG_VCC FG2 FG_GND FG_GND
VIDEO HEAD (ODD,EVEN)
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
MD(J-MECHANISM)
FP-102 FLEXIBLE BOARD
LM_LOAD
LM_LOAD
LM_UNLOAD
LM_UNLOAD
DEW+
DEW-
MODE A
MODE B
MODE C
SW_COM/SW_GND
FP-100 FLEXIBLE BOARD
M903 LOADING MOTOR
FP-228 FLEXIBLE BOARD
DEW SENSOR
16

FRAME SCHEMATIC DIAGRAM (4/4)


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H
CN200 INPUT1
CN300 INPUT2
XM-002 BOARD
XK-001 BOARD
XK-050 HARNESS
CN202 3P
GND 3
LOW_CUT_ON_CH2 2
LOW_CUT_ON_CH1 1
CN001 3P
3 GND
2 LOW_CUT_ON_CH2
1 LOW_CUT_ON_CH1
CN201 16P
1 CH1_(+)_ATT
2 CH1_(+)_COM
3 CH1_(+)_THR
4 REG_GND
5 CH1_(-)_ATT
6 CH1_(-)_COM
7 CH1_(-)_THR
8 REG_GND
9 CH1_GAIN_HIGH
10 CH1_GAIN_LOW
11 CH1_GAIN_LINE
12 XLR_48V_CH1
13 A_4.6V
14 CH1_SIG_OUT
15 REG_GND
16 REG_GND
CN301 16P
1 CH2_(+)_ATT
2 CH2_(+)_COM
3 CH2_(+)_THR
4 REG_GND
5 CH2_(-)_ATT
6 CH2_(-)_COM
7 CH2_(-)_THR
8 REG_GND
9 CH2_GAIN_HIGH
10 CH2_GAIN_LOW
11 CH2_GAIN_LINE
12 XLR_48V_CH2
13 A_4.6V
14 CH2_SIG_OUT
15 REG_GND
16 REG_GND
FP-217 FLEXIBLE
FP-217 FLEXIBLE
CN102 16P
16 CH1_(+)_ATT
15 CH1_(+)_COM
14 CH1_(+)_THR
13 REG_GND
12 CH1_(-)_ATT
11 CH1_(-)_COM
10 CH1_(-)_THR
9 REG_GND
8 CH1_GAIN_HIGH
7 CH1_GAIN_LOW
6 CH1_GAIN_LINE
5 XLR_48V_CH1
4 A_4.6V
3 CH1_SIG_OUT
2 REG_GND
1 REG_GND
CN101 16P
16 CH2_(+)_ATT
15 CH2_(+)_COM
14 CH2_(+)_THR
13 REG_GND
12 CH2_(-)_ATT
11 CH2_(-)_COM
10 CH2_(-)_THR
9 REG_GND
8 CH2_GAIN_HIGH
7 CH2_GAIN_LOW
6 CH2_GAIN_LINE
5 XLR_48V_CH2
4 A_4.6V
3 CH2_SIG_OUT
2 REG_GND
1 REG_GND
XS-002 BOARD
CN402 8P
8 GND
7 MIC_L
6 MIC_GND
5 STROB_ON
4 ID2
3 ID1
2 LANC_SIG
1 SHOE_UNREG
(INTELLIGENT ACCESSORY SHOE)
CN103 8P
SHOE_GND 8
L(CH1)OUT 7
SHOEMIC_GND 6
R(CH2)OUT 5
SHOE_ID2 4
SHOE_ID1 3
SHOE_UNREG 2
PRINT GND 1
CN403 8P
8 GND2
7 SHOE_CONT_AD
6 CTS(HDS)
5 RTS(SCK)
4 RX
3 TX
2 N.C.
1 SHOE_UNREG2
XH-050 HARNESS
XD-002 BOARD
CN401 13P
SHOEMIC_GND 1
SHOEMIC_GND 2
SHOEMIC_GND 3
SHOEMIC_GND 4
AU_4.6V 5
AU_4.6V 6
SHOE_UNREG 7
SHOE_UNREG 8
CH1_MIC48V 9
CH2_MIC48V 10
DD_GND 11
DD_GND 12
DD_GND 13
FP-218 FLEXIBLE
13 SHOEMIC_GND
12 SHOEMIC_GND
11 SHOEMIC_GND
10 SHOEMIC_GND
9 AU_4.6V
8 AU_4.6V
7 SHOE_UNREG
6 SHOE_UNREG
5 CH1_MIC48V
4 CH2_MIC48V
3 DD_GND
2 DD_GND
1 DD_GND
16

COVER

4-2. SCHEMATIC DIAGRAMS (1/2)

Link

TO (2/2)

- CD-389 BOARD (CCD IMAGER)
- SE-132 BOARD (PITCH/YAW SENSOR)
- MA-425 BOARD (MIC AMP, AF LASER CONTROL)
- CK-134 BOARD (CONTROL SWITCH)
- JK-222 BOARD (AV IN/OUT, DV/USB CONNECTOR)
- PD-191 BOARD (1/2) (LCD DRIVER, TIMING GENERATOR)
- PD-191 BOARD (2/2) (LCD DRIVER, BACKLIGHT)
- LB-089 BOARD (EVF, EVF BACK LIGHT)
- FP-504 FLEXIBLE BOARD
- FP-100, FP-228, FP-102 FLEXIBLE BOARD (MODE SWITCH, DEW SENSOR, TAPE TOP/END SENSOR, S/T REEL)
- VC-318 BOARD (1/17) (A/D CONVERTER, TIMING GENERATOR)
- VC-318 BOARD (2/17) (CAMERA RGB PROCESSOR)
- VC-318 BOARD (3/17) (CAMERA PROCESSOR)
- VC-318 BOARD (4/17) (MPEG MOVIE/DIGITAL STILL PROCESS)
- VC-318 BOARD (5/17) (HI CONTROL, DIGITAL STILL CONTROL)
- VC-318 BOARD (6/17) (FLASH MEMORY, SDRAM)
- VC-318 BOARD (7/17) (DV SIGNAL PROCESS)
- VC-318 BOARD (8/17) (DV INTERFACE)
- VC-318 BOARD (9/17) (REC/PB AMP)
- VC-318 BOARD (10/17) (USB INTERFACE)
- VC-318 BOARD (11/17) (VIDEO A/D CONVERTER)
- VC-318 BOARD (12/17) (DRUM/CAPSTAN/LOADING DRIVE)
- VC-318 BOARD (13/17) (CAMERA/MECHA CONTROL)
- VC-318 BOARD (14/17) (HI CONTROL)
- VC-318 BOARD (15/17) (LANC, RESET, BEEP, AFLD)
- VC-318 BOARD (16/17) (CONNECTOR)
- VC-318 BOARD (17/17) (CONNECTOR, EVR)
- COMMON NOTE FOR SCHEMATIC DIAGRAMS
- WAVEFORMS

COVER

4-2. SCHEMATIC DIAGRAMS (2/2)

Link

TO (1/2)

- DB-016 BOARD (1/9) (LENS MOTOR DRIVE)
- DB-016 BOARD (2/9) (VAP DRIVER)
- DB-016 BOARD (3/9) (MIC VOL)
- DB-016 BOARD (4/9) (AUDIO PROCESSOR 1)
- DB-016 BOARD (5/9) (AUDIO PROCESSOR 2)
- DB-016 BOARD (6/9) (VIDEO IN/OUT)
- DB-016 BOARD (7/9) (EVF DRIVE, TIMING GENERATOR)
- DB-016 BOARD (8/9) (CONNECTOR)
- DB-016 BOARD (9/9) (DC/DC CONTROL)
- XD-002 BOARD (DC/DC CONVERTER)
- XS-002 BOARD (MIC SELECT)
- XM-002 BOARD (MIC AMP)
- XK-001 BOARD (LOW CUT SW)

- COMMON NOTE FOR SCHEMATIC DIAGRAMS
- WAVEFORMS

4-2. SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μ μF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520

Kinds of capacitor

Temperature characteristics

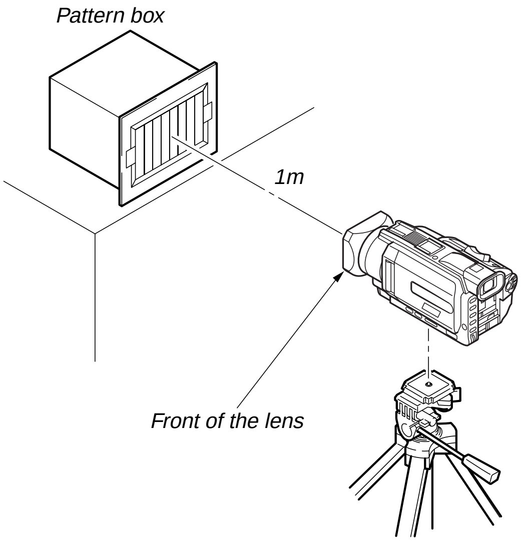
External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- ▭ : non flammable resistor
- ▭ : fusible resistor
- □ : panel designation
- ━ : B+ Line
- ╍ : B– Line
- ⇨ : IN/OUT direction of (+,–) B LINE.
- ▭ : adjustment for repair.
- ━ : VIDEO SIGNAL (ANALOG)
- ━ : AUDIO SIGNAL (ANALOG)
- ━ : VIDEO/AUDIO SIGNAL
- ━ : VIDEO/AUDIO/SERVO SIGNAL
- ━ : SERVO SIGNAL
- Circled numbers refer to waveforms.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

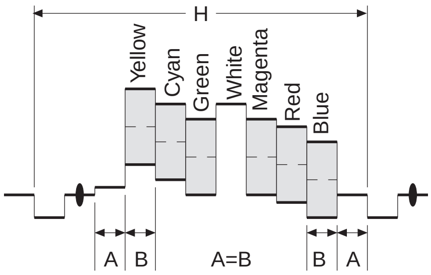


Fig. a (Video output terminal output waveform)

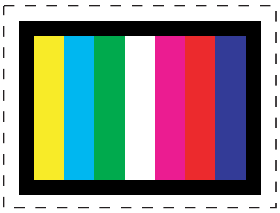


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

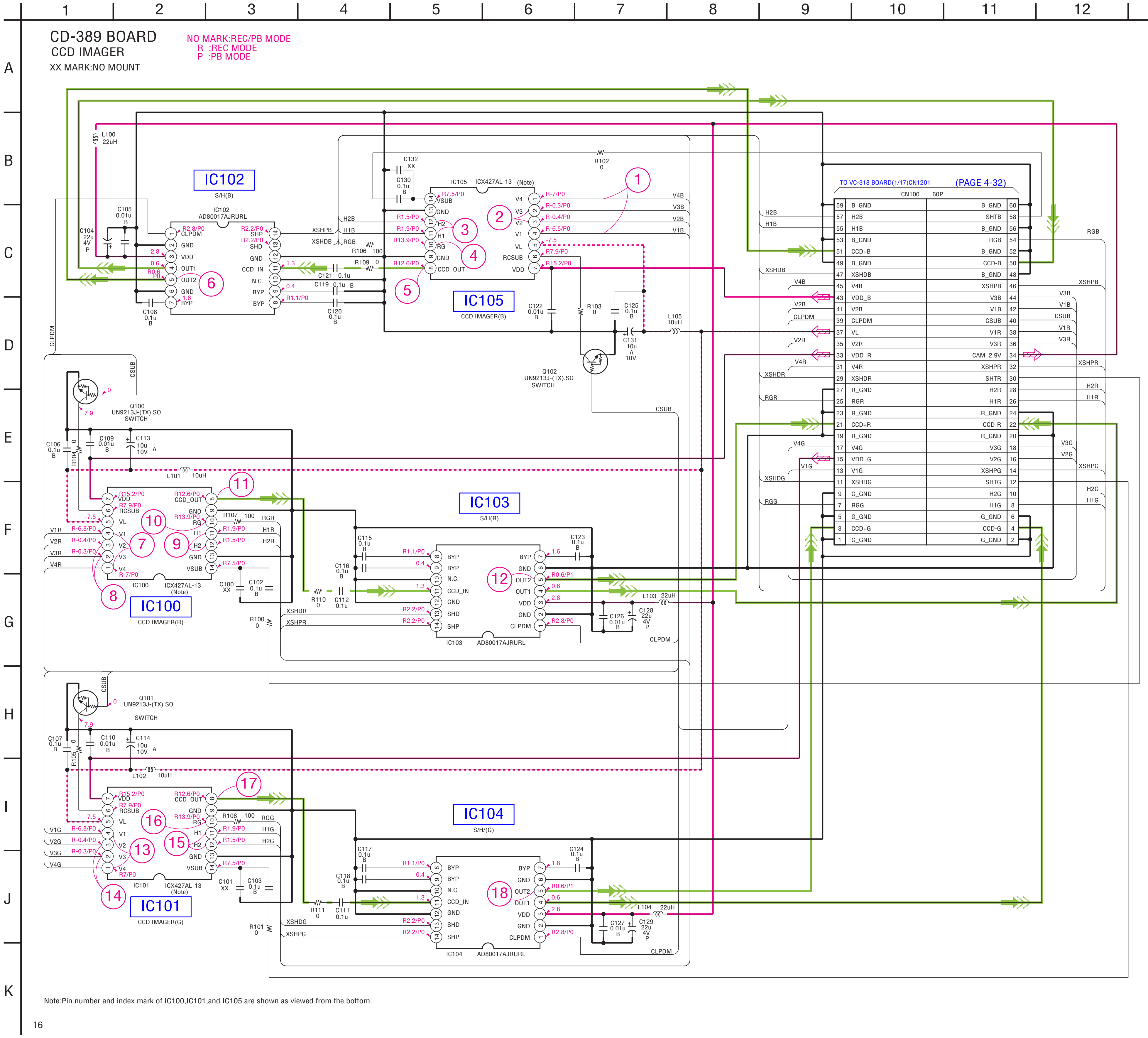
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note : Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

4-2. SCHEMATIC DIAGRAMS

For Schematic Diagram

- Refer to page 4-91 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K
CD-389 BOARD
CCD IMAGER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC102
S/H(B)
IC102 AD80017AJRURL
IC105 ICX427AL-13 (Note)
IC105
CCD IMAGER(B)
IC103
S/H(R)
IC103 AD80017AJRURL
IC100
CCD IMAGER(R)
IC100 ICX427AL-13 (Note)
IC104
S/H(G)
IC104 AD80017AJRURL
IC101
CCD IMAGER(G)
IC101 ICX427AL-13 (Note)
Q100 UN9213J-(TX).SO SWITCH
Q101 UN9213J-(TX).SO SWITCH
Q102 UN9213J-(TX).SO SWITCH
L100 22uH
L101 10uH
L102 10uH
L103 22uH
L104 22uH
L105 10uH
TO VC-318 BOARD(1/17)CN1201
(PAGE 4-32)
CN100 60P
59 B_GND / B_GND 60
57 H2B / SHTB 58
55 H1B / B_GND 56
53 B_GND / RGB 54
51 CCD+B / B_GND 52
49 B_GND / CCD-B 50
47 XSHDB / B_GND 48
45 V4B / XSHPB 46
43 VDD_B / V3B 44
41 V2B / V1B 42
39 CLPDM / CSUB 40
37 VL / V1R 38
35 V2R / V3R 36
33 VDD_R / CAM_2.9V 34
31 V4R / XSHPR 32
29 XSHDR / SHTR 30
27 R_GND / H2R 28
25 RGR / H1R 26
23 R_GND / R_GND 24
21 CCD+R / CCD-R 22
19 R_GND / R_GND 20
17 V4G / V3G 18
15 VDD_G / V2G 16
13 V1G / XSHPG 14
11 XSHDG / SHTG 12
9 G_GND / H2G 10
7 RGG / H1G 8
5 G_GND / G_GND 6
3 CCD+G / CCD-G 4
1 G_GND / G_GND 2
CLPDM
CSUB
16

Note:Pin number and index mark of IC100,IC101,and IC105 are shown as viewed from the bottom.

SIGNAL PATH

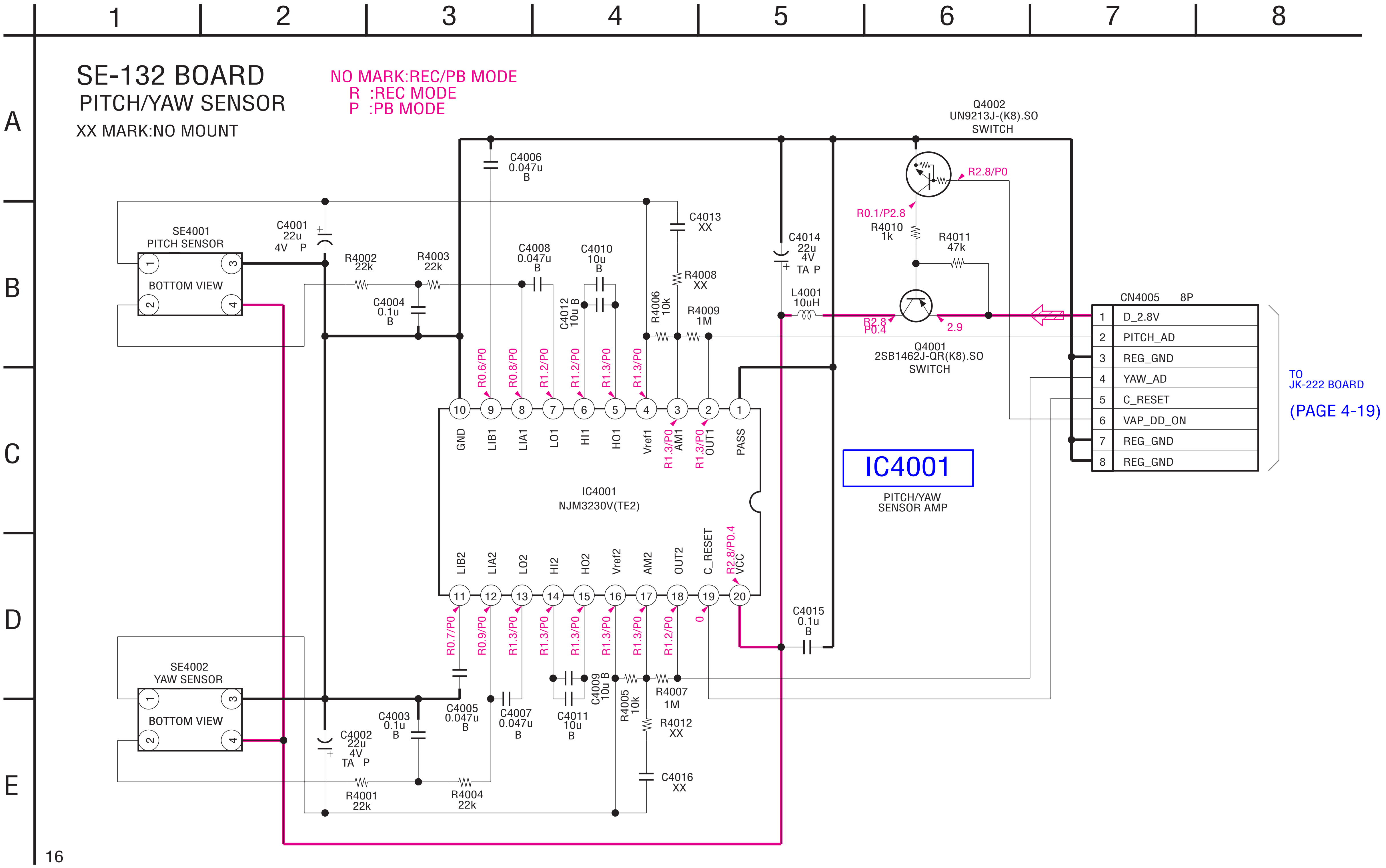
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇒
PB			

Precautions Upon Replacing CCD imager

- The CD-389 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

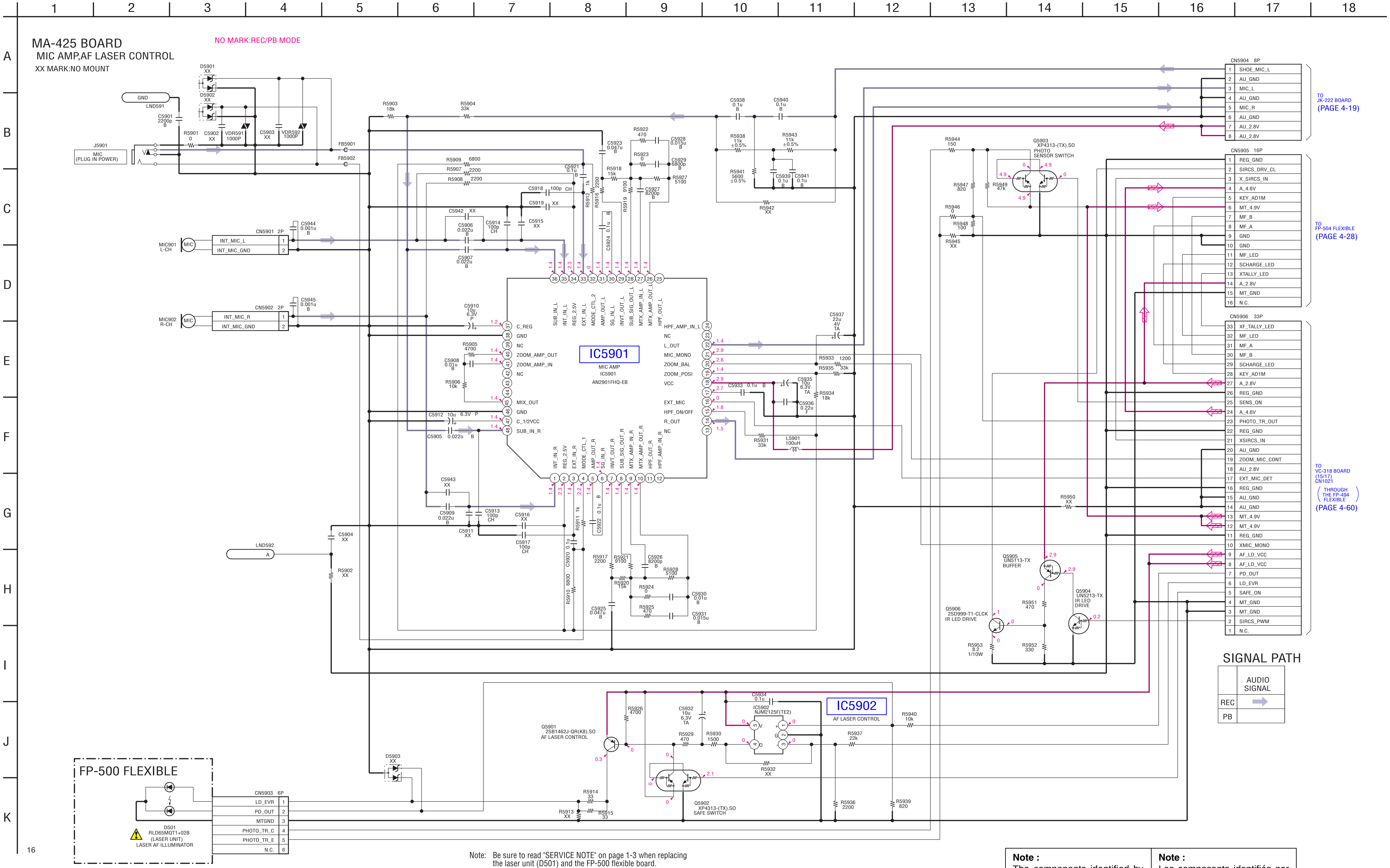
For Schematic Diagram

- Refer to page 4-89 for printed wiring board.


1
2
3
4
5
6
7
8
A
B
C
D
E
SE-132 BOARD
PITCH/YAW SENSOR
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
SE4001
PITCH SENSOR
BOTTOM VIEW
SE4002
YAW SENSOR
BOTTOM VIEW
C4001 22u 4V P
C4002 22u 4V TA P
C4003 0.1u B
C4004 0.1u B
C4005 0.047u B
C4006 0.047u B
C4007 0.047u B
C4008 0.047u B
C4009 10u B
C4010 10u B
C4011 10u B
C4012 10u B
C4013 XX
C4014 22u 4V TA P
C4015 0.1u B
C4016 XX
R4001 22k
R4002 22k
R4003 22k
R4004 22k
R4005 10k
R4006 10k
R4007 1M
R4008 XX
R4009 1M
R4010 1k
R4011 47k
R4012 XX
L4001 10uH
Q4001
2SB1462J-QR(K8).SO
SWITCH
Q4002
UN9213J-(K8).SO
SWITCH
R2.8/P0
R0.1/P2.8
R2.8 P0.4
2.9
IC4001
NJM3230V(TE2)
GND
LIB1
LIA1
LO1
HI1
HO1
Vref1
AM1
OUT1
PASS
LIB2
LIA2
LO2
HI2
HO2
Vref2
AM2
OUT2
C_RESET
VCC
R0.6/P0
R0.8/P0
R1.2/P0
R1.2/P0
R1.3/P0
R1.3/P0
R1.3/P0
R1.3/P0
R0.7/P0
R0.9/P0
R1.3/P0
R1.3/P0
R1.3/P0
R1.3/P0
R1.3/P0
R1.2/P0
0
R2.8/P0.4
IC4001
PITCH/YAW
SENSOR AMP
CN4005 8P
1 D_2.8V
2 PITCH_AD
3 REG_GND
4 YAW_AD
5 C_RESET
6 VAP_DD_ON
7 REG_GND
8 REG_GND
TO
JK-222 BOARD
(PAGE 4-19)
16

For Schematic Diagram

- Refer to page 4-95 for printed wiring board.

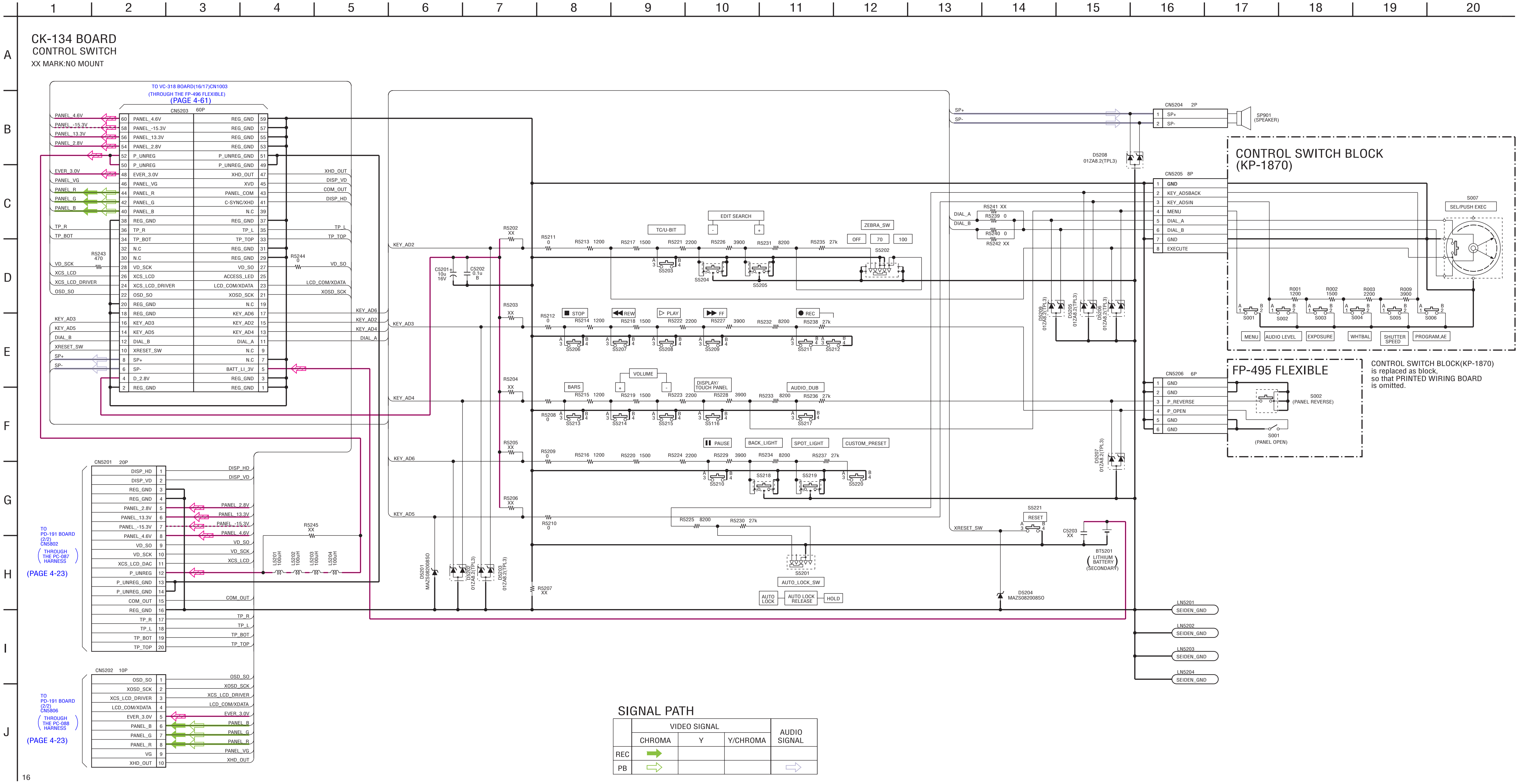

MA-425 BOARD
MIC AMP,AF LASER CONTROL
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC5901
MIC AMP
IC5901
AN2901FHQ-EB
IC5902
AF LASER CONTROL
IC5902
NJM2125F(TE2)
J5901
MIC
(PLUG IN POWER)
MIC901
L-CH
MIC902
R-CH
CN5901 2P
INT_MIC_L
INT_MIC_GND
CN5902 2P
INT_MIC_R
INT_MIC_GND
LND591
LND592
GND
D5901
D5902
D5903
FB5901
FB5902
VDR591
VDR592
Q5901
2SB1462J-QR(K8).SO
AF LASER CONTROL
Q5902
XP4313-(TX).SO
SAFE SWITCH
Q5903
XP4313-(TX).SO
PHOTO SENSOR SWITCH
Q5904
UN5213-TX
IR LED DRIVE
Q5905
UN5113-TX
BUFFER
Q5906
2SD999-T1-CLCK
IR LED DRIVE
CN5904 8P
SHOE_MIC_L
AU_GND
MIC_L
AU_GND
MIC_R
AU_GND
AU_2.8V
AU_2.8V
TO JK-222 BOARD
(PAGE 4-19)
CN5905 16P
REG_GND
SIRCS_DRV_CL
X_SIRCS_IN
A_4.6V
KEY_AD1M
MT_4.9V
MF_B
MF_A
GND
GND
MF_LED
SCHARGE_LED
XTALLY_LED
A_2.8V
MT_GND
N.C.
TO FP-504 FLEXIBLE
(PAGE 4-28)
CN5906 33P
XF_TALLY_LED
MF_LED
MF_A
MF_B
SCHARGE_LED
KEY_AD1M
A_2.8V
REG_GND
SENS_ON
A_4.6V
PHOTO_TR_OUT
REG_GND
XSIRCS_IN
AU_GND
ZOOM_MIC_CONT
AU_2.8V
EXT_MIC_DET
REG_GND
AU_GND
AU_GND
MT_4.9V
MT_4.9V
REG_GND
XMIC_MONO
AF_LD_VCC
AF_LD_VCC
PD_OUT
LD_EVR
SAFE_ON
MT_GND
MT_GND
SIRCS_PWM
N.C.
TO VC-318 BOARD (15/17) CN1021
THROUGH THE FP-494 FLEXIBLE
(PAGE 4-60)
FP-500 FLEXIBLE
CN5903 6P
LD_EVR
PD_OUT
MTGND
PHOTO_TR_C
PHOTO_TR_E
N.C.
D501
RLD65MQT1+02B
(LASER UNIT)
LASER AF ILLUMINATOR
SIGNAL PATH
AUDIO SIGNAL
REC
PB
16

Note: Be sure to read "SERVICE NOTE" on page 1-3 when replacing the laser unit (D501) and the FP-500 flexible board.

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

For Schematic Diagram

- Refer to page 4-103 for printed wiring board.

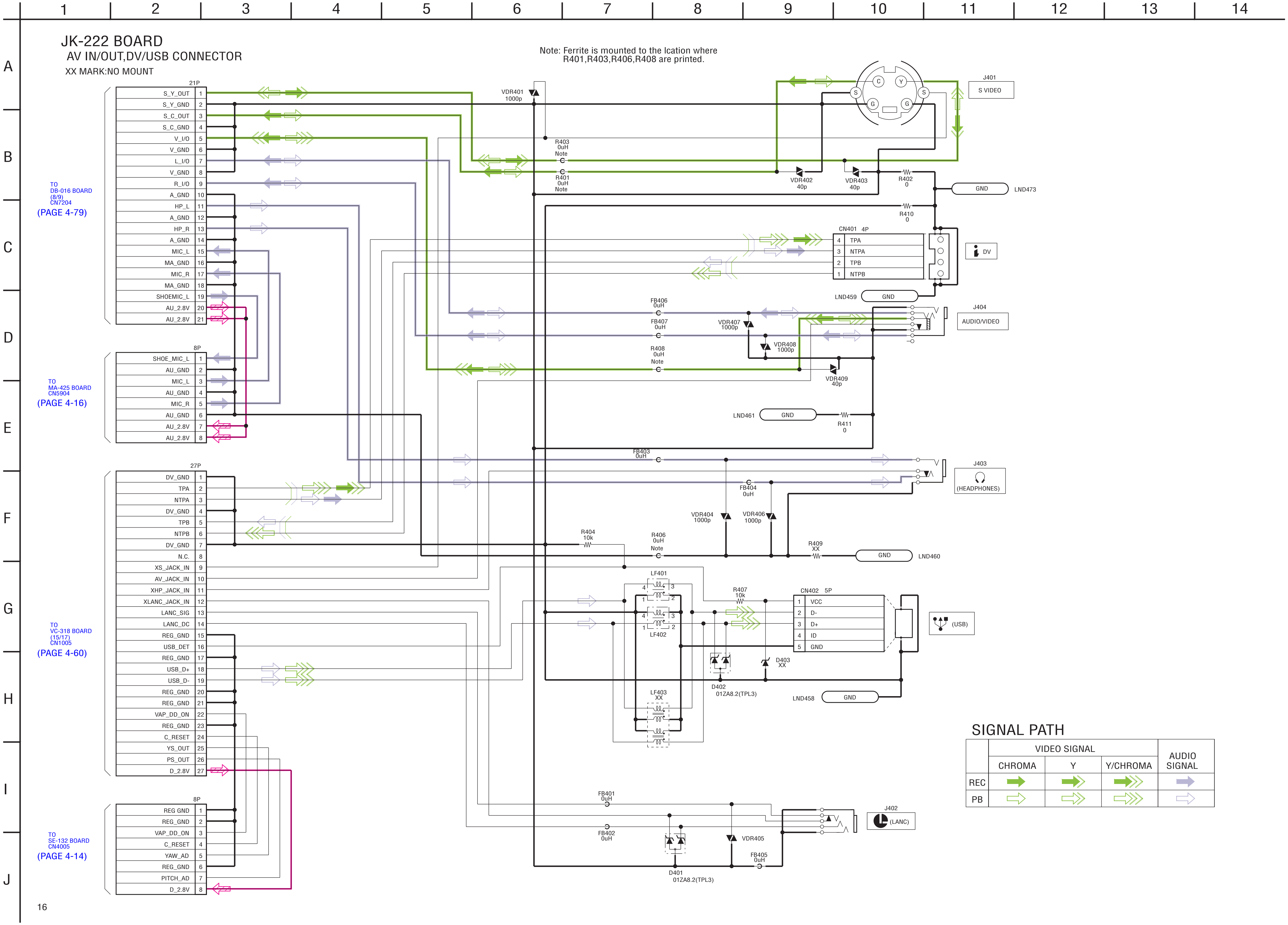

CK-134 BOARD
CONTROL SWITCH
XX MARK:NO MOUNT
TO VC-318 BOARD(16/17)CN1003
(THROUGH THE FP-496 FLEXIBLE)
(PAGE 4-61)
CN5203 60P
CN5201 20P
CN5202 10P
TO PD-191 BOARD (2/2) CN5802
THROUGH THE PC-087 HARNESS
(PAGE 4-23)
TO PD-191 BOARD (2/2) CN5806
THROUGH THE PC-088 HARNESS
(PAGE 4-23)
EDIT SEARCH
TC/U-BIT
ZEBRA_SW
OFF
70
100
STOP
REW
PLAY
FF
REC
VOLUME
BARS
DISPLAY/TOUCH PANEL
AUDIO_DUB
PAUSE
BACK_LIGHT
SPOT_LIGHT
CUSTOM_PRESET
RESET
AUTO_LOCK_SW
AUTO LOCK
AUTO LOCK RELEASE
HOLD
BT5201 LITHIUM BATTERY (SECONDARY)
CN5204 2P
SP901 (SPEAKER)
CONTROL SWITCH BLOCK (KP-1870)
CN5205 8P
S007 SEL/PUSH EXEC
MENU
AUDIO LEVEL
EXPOSURE
WHTBAL
SHUTTER SPEED
PROGRAM AE
CN5206 6P
FP-495 FLEXIBLE
S002 (PANEL REVERSE)
S001 (PANEL OPEN)
CONTROL SWITCH BLOCK(KP-1870) is replaced as block, so that PRINTED WIRING BOARD is omitted.
LN5201 SEIDEN_GND
LN5202 SEIDEN_GND
LN5203 SEIDEN_GND
LN5204 SEIDEN_GND
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡			
PB	⇨			⇨

For Schematic Diagram

- Refer to page 4-99 for printed wiring board.

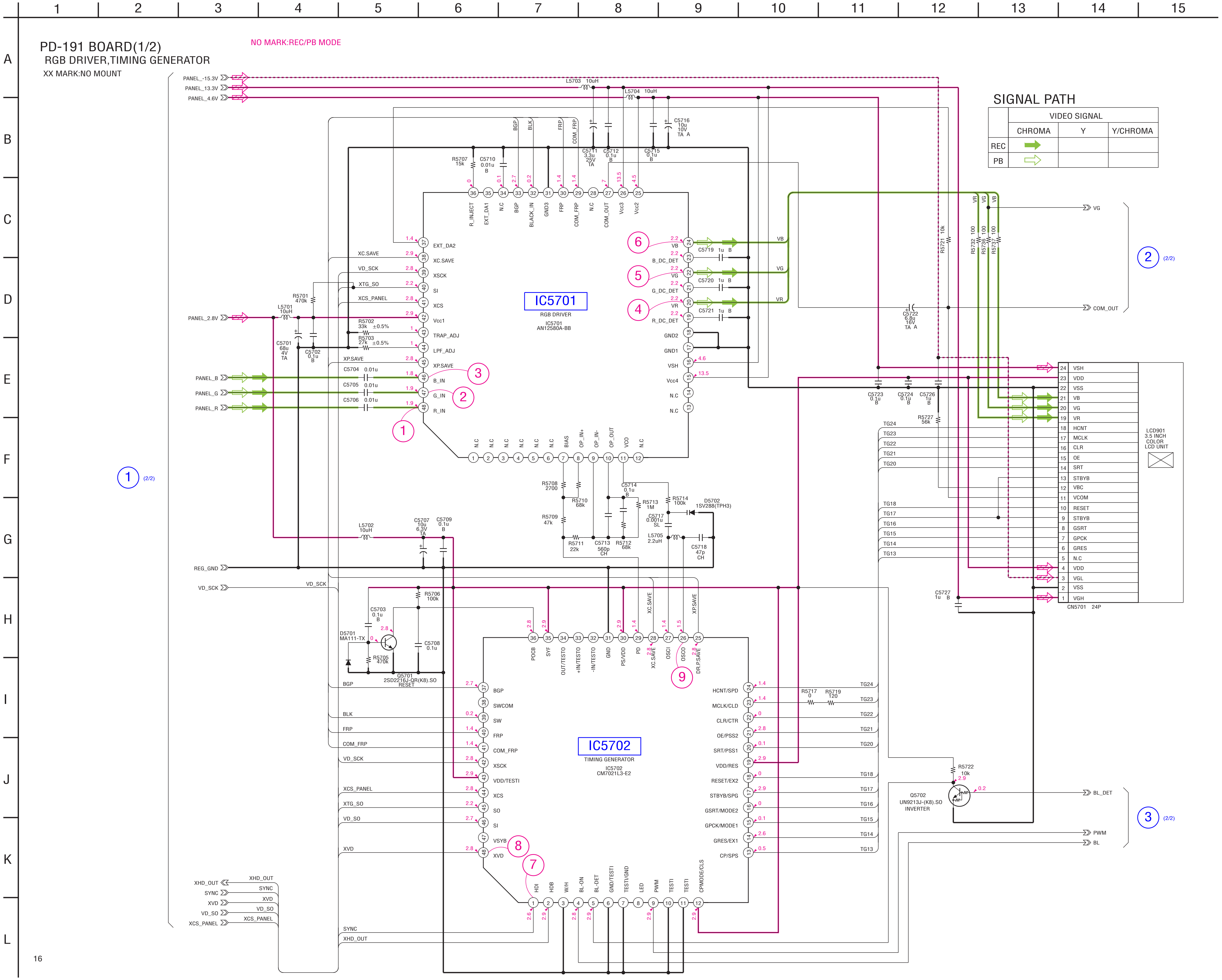

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J
JK-222 BOARD
AV IN/OUT,DV/USB CONNECTOR
XX MARK:NO MOUNT
Note: Ferrite is mounted to the lcation where R401,R403,R406,R408 are printed.
21P
S_Y_OUT 1
S_Y_GND 2
S_C_OUT 3
S_C_GND 4
V_I/O 5
V_GND 6
L_I/O 7
V_GND 8
R_I/O 9
A_GND 10
HP_L 11
A_GND 12
HP_R 13
A_GND 14
MIC_L 15
MA_GND 16
MIC_R 17
MA_GND 18
SHOEMIC_L 19
AU_2.8V 20
AU_2.8V 21
TO DB-016 BOARD (8/9) CN7204
(PAGE 4-79)
8P
SHOE_MIC_L 1
AU_GND 2
MIC_L 3
AU_GND 4
MIC_R 5
AU_GND 6
AU_2.8V 7
AU_2.8V 8
TO MA-425 BOARD CN5904
(PAGE 4-16)
27P
DV_GND 1
TPA 2
NTPA 3
DV_GND 4
TPB 5
NTPB 6
DV_GND 7
N.C. 8
XS_JACK_IN 9
AV_JACK_IN 10
XHP_JACK_IN 11
XLANC_JACK_IN 12
LANC_SIG 13
LANC_DC 14
REG_GND 15
USB_DET 16
REG_GND 17
USB_D+ 18
USB_D- 19
REG_GND 20
REG_GND 21
VAP_DD_ON 22
REG_GND 23
C_RESET 24
YS_OUT 25
PS_OUT 26
D_2.8V 27
TO VC-318 BOARD (15/17) CN1005
(PAGE 4-60)
8P
REG GND 1
REG_GND 2
VAP_DD_ON 3
C_RESET 4
YAW_AD 5
REG_GND 6
PITCH_AD 7
D_2.8V 8
TO SE-132 BOARD CN4005
(PAGE 4-14)
16
VDR401 1000p
R403 0uH Note
R401 0uH Note
J401
S VIDEO
C Y S S G G
VDR402 40p
VDR403 40p
R402 0
GND
LND473
R410 0
CN401 4P
4 TPA
3 NTPA
2 TPB
1 NTPB
DV
LND459
GND
J404
AUDIO/VIDEO
FB406 0uH
FB407 0uH
VDR407 1000p
VDR408 1000p
R408 0uH Note
VDR409 40p
LND461
GND
R411 0
FB403 0uH
J403
(HEADPHONES)
FB404 0uH
VDR404 1000p
VDR406 1000p
R404 10k
R406 0uH Note
R409 XX
GND
LND460
LF401
LF402
R407 10k
CN402 5P
1 VCC
2 D-
3 D+
4 ID
5 GND
(USB)
D403 XX
D402 01ZA8.2(TPL3)
LF403 XX
LND458
GND
FB401 0uH
FB402 0uH
VDR405
FB405 0uH
D401 01ZA8.2(TPL3)
J402
(LANC)

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

For Schematic Diagram

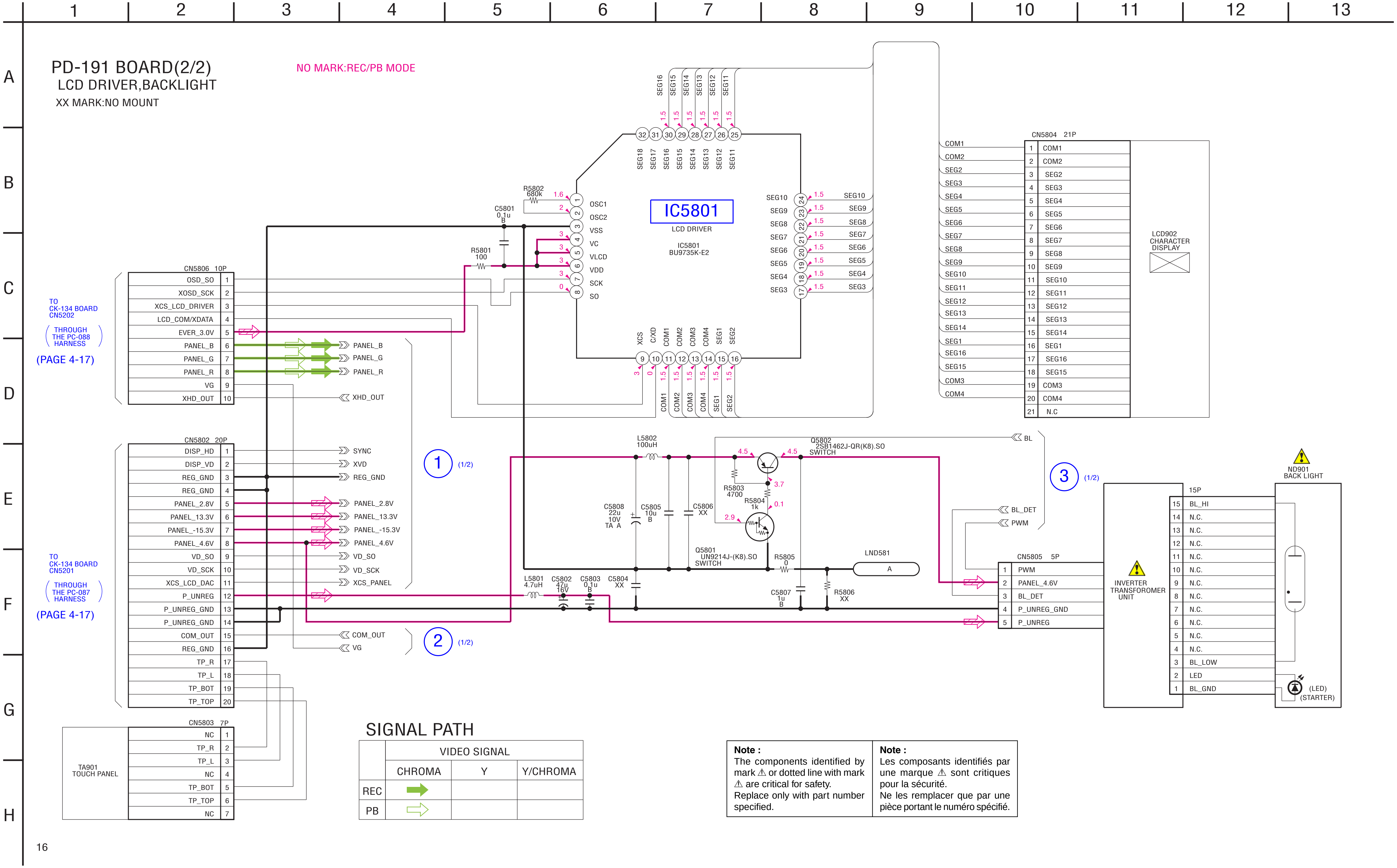
- Refer to page 4-97 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
L
PD-191 BOARD(1/2)
RGB DRIVER,TIMING GENERATOR
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
PANEL_-15.3V
PANEL_13.3V
PANEL_4.6V
PANEL_2.8V
PANEL_B
PANEL_G
PANEL_R
REG_GND
VD_SCK
XHD_OUT
SYNC
XVD
VD_SO
XCS_PANEL
L5703 10uH
L5704 10uH
L5701 10uH
L5702 10uH
L5705 2.2uH
R5701 470k
R5702 33k ±0.5%
R5703 27k ±0.5%
R5707 15k
R5705 470k
R5706 100k
R5708 2700
R5709 47k
R5710 68k
R5711 22k
R5712 68k
R5713 1M
R5714 100k
R5717 0
R5719 120
R5721 10k
R5722 10k
R5727 56k
C5701 68u 4V TA
C5702 0.1u B
C5703 0.1u B
C5704 0.01u
C5705 0.01u
C5706 0.01u
C5707 10u 6.3V TA
C5708 0.1u
C5709 0.1u B
C5710 0.01u B
C5711 3.3u 25V TA
C5712 0.1u B
C5713 560p CH
C5714 0.1u B
C5715 0.1u B
C5716 10u 10V TA A
C5717 0.001u SL
C5718 47p CH
C5719 1u B
C5720 1u B
C5721 1u B
C5722 6.8u 16V TA A
C5723 0.1u B
C5724 0.1u B
C5726 1u B
C5727 1u B
D5701 MA111-TX
D5702 1SV288(TPH3)
Q5701 2SD2216J-QR(K8).SO RESET
Q5702 UN9213J-(K8).SO INVERTER
IC5701
RGB DRIVER
IC5701 AN12580A-BB
R_INJECT
EXT_DA1
N.C
BGP
BLACK_IN
GND3
FRP
COM_FRP
COM_OUT
Vcc3
Vcc2
EXT_DA2
XC.SAVE
XSCK
SI
XCS
Vcc1
TRAP_ADJ
LPF_ADJ
XP.SAVE
B_IN
G_IN
R_IN
VB
B_DC_DET
VG
G_DC_DET
VR
R_DC_DET
GND2
GND1
VSH
Vcc4
BIAS
OP_IN+
OP_IN-
OP_OUT
VCO
IC5702
TIMING GENERATOR
IC5702 CM7021L3-E2
POCB
SYF
OUT/TESTO
+IN/TESTO
-IN/TESTO
GND
PS/VDD
PD
OSCI
OSCO
DR.P.SAVE
BGP
SWCOM
SW
FRP
COM_FRP
XSCK
VDD/TESTI
XCS
SO
SI
VSYB
XVD
HCNT/SPD
MCLK/CLD
CLR/CTR
OE/PSS2
SRT/PSS1
VDD/RES
RESET/EX2
STBYB/SPG
GSRT/MODE2
GPCK/MODE1
GRES/EX1
CP/SPS
HDI
HDB
W/H
BL-ON
BL-DET
GND/TESTI
TESTI/GND
LED
PWM
TESTI
CPMODE/CLS
TG13
TG14
TG15
TG16
TG17
TG18
TG20
TG21
TG22
TG23
TG24
VG
COM_OUT
BL_DET
PWM
BL
CN5701 24P
1 VGH
2 VSS
3 VGL
4 VDD
5 N.C
6 GRES
7 GPCK
8 GSRT
9 STBYB
10 RESET
11 VCOM
12 VBC
13 STBYB
14 SRT
15 OE
16 CLR
17 MCLK
18 HCNT
19 VR
20 VG
21 VB
22 VSS
23 VDD
24 VSH
LCD901 3.5 INCH COLOR LCD UNIT
1 (2/2)
2 (2/2)
3 (2/2)
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

For Schematic Diagram
- Refer to page 4-97 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H
PD-191 BOARD(2/2)
LCD DRIVER,BACKLIGHT
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC5801
LCD DRIVER
IC5801
BU9735K-E2
OSC1
OSC2
VSS
VC
VLCD
VDD
SCK
SO
SEG18 SEG17 SEG16 SEG15 SEG14 SEG13 SEG12 SEG11
SEG10 SEG9 SEG8 SEG7 SEG6 SEG5 SEG4 SEG3
XCS C/XD COM1 COM2 COM3 COM4 SEG1 SEG2
R5802
680k
C5801
0.1u
B
R5801
100
CN5806 10P
OSD_SO
XOSD_SCK
XCS_LCD_DRIVER
LCD_COM/XDATA
EVER_3.0V
PANEL_B
PANEL_G
PANEL_R
VG
XHD_OUT
TO
CK-134 BOARD
CN5202
THROUGH
THE PC-088
HARNESS
(PAGE 4-17)
CN5802 20P
DISP_HD
DISP_VD
REG_GND
REG_GND
PANEL_2.8V
PANEL_13.3V
PANEL_-15.3V
PANEL_4.6V
VD_SO
VD_SCK
XCS_LCD_DAC
P_UNREG
P_UNREG_GND
P_UNREG_GND
COM_OUT
REG_GND
TP_R
TP_L
TP_BOT
TP_TOP
TO
CK-134 BOARD
CN5201
THROUGH
THE PC-087
HARNESS
(PAGE 4-17)
SYNC
XVD
REG_GND
PANEL_2.8V
PANEL_13.3V
PANEL_-15.3V
PANEL_4.6V
VD_SO
VD_SCK
XCS_PANEL
COM_OUT
VG
XHD_OUT
① (1/2)
② (1/2)
③ (1/2)
CN5803 7P
NC
TP_R
TP_L
NC
TP_BOT
TP_TOP
NC
TA901
TOUCH PANEL
CN5804 21P
COM1 COM2 SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 SEG9 SEG10 SEG11 SEG12 SEG13 SEG14 SEG1 SEG16 SEG15 COM3 COM4 N.C
LCD902
CHARACTER
DISPLAY
L5802
100uH
Q5802
2SB1462J-QR(K8).SO
SWITCH
R5803
4700
R5804
1k
Q5801
UN9214J-(K8).SO
SWITCH
C5808
22u
10V
TA A
C5805
10u
B
C5806
XX
R5805
0
LND581
A
C5807
1u
B
R5806
XX
L5801
4.7uH
C5802
47u
16V
C5803
0.1u
B
C5804
XX
BL
BL_DET
PWM
CN5805 5P
PWM
PANEL_4.6V
BL_DET
P_UNREG_GND
P_UNREG
INVERTER
TRANSFOROMER
UNIT
15P
BL_HI
N.C.
BL_LOW
LED
BL_GND
ND901
BACK LIGHT
(LED)
(STARTER)
1.6 2 3 3 3 3 0 1.5 4.5 3.7 0.1 2.9

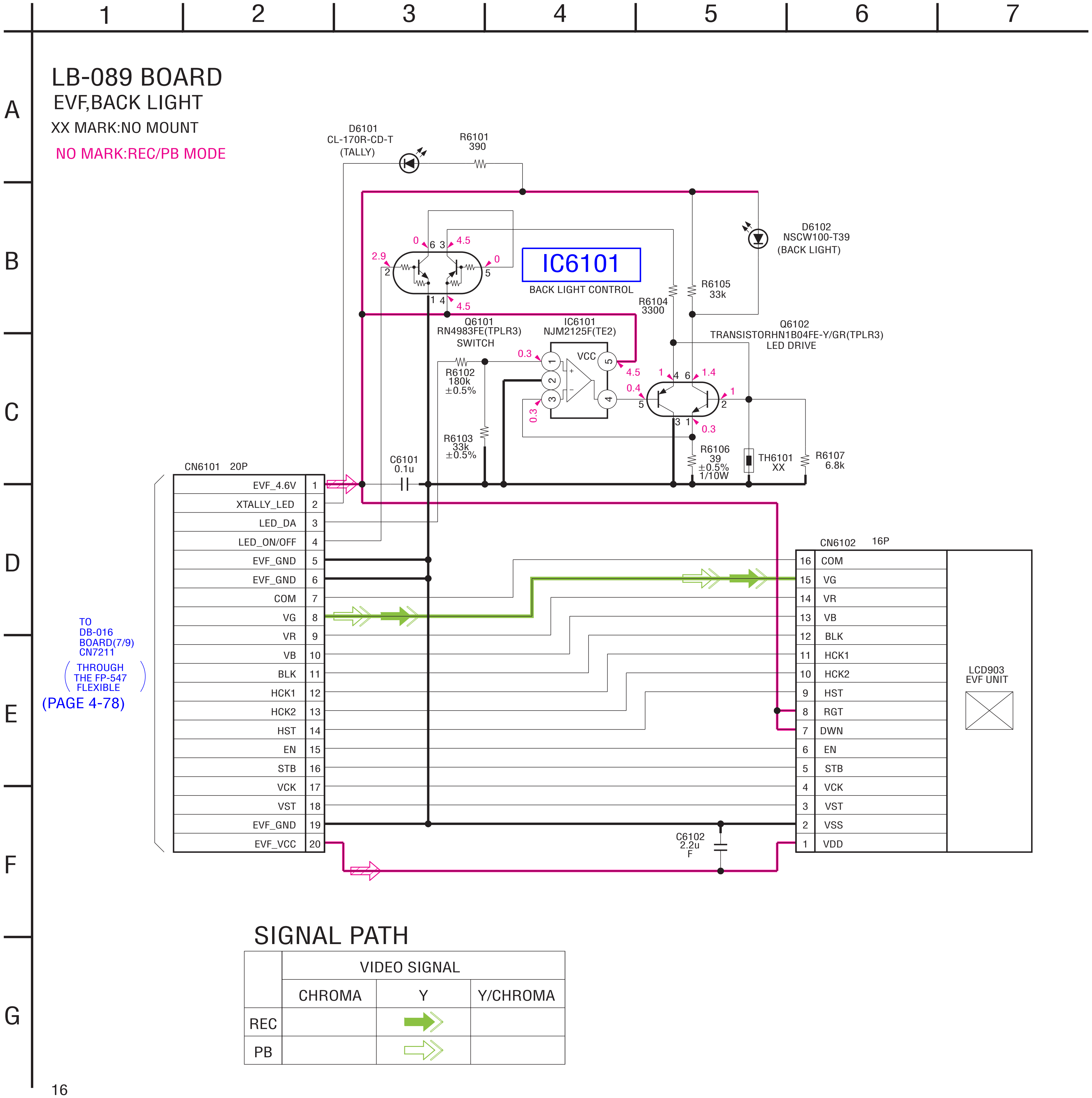
SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

For Schematic Diagram
- Refer to page 4-107 for printed wiring board.


1
2
3
4
5
6
7
A
B
C
D
E
F
G
LB-089 BOARD
EVF,BACK LIGHT
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
D6101
CL-170R-CD-T
(TALLY)
R6101
390
D6102
NSCW100-T39
(BACK LIGHT)
IC6101
BACK LIGHT CONTROL
R6105
33k
R6104
3300
Q6101
RN4983FE(TPLR3)
SWITCH
IC6101
NJM2125F(TE2)
Q6102
TRANSISTORHN1B04FE-Y/GR(TPLR3)
LED DRIVE
VCC
R6102
180k
±0.5%
R6103
33k
±0.5%
C6101
0.1u
R6106
39
±0.5%
1/10W
TH6101
XX
R6107
6.8k
2.9
0
4.5
0
4.5
0.3
4.5
0.3
1
1.4
0.4
1
0.3
CN6101 20P
EVF_4.6V 1
XTALLY_LED 2
LED_DA 3
LED_ON/OFF 4
EVF_GND 5
EVF_GND 6
COM 7
VG 8
VR 9
VB 10
BLK 11
HCK1 12
HCK2 13
HST 14
EN 15
STB 16
VCK 17
VST 18
EVF_GND 19
EVF_VCC 20
TO
DB-016
BOARD(7/9)
CN7211
THROUGH
THE FP-547
FLEXIBLE
(PAGE 4-78)
CN6102 16P
16 COM
15 VG
14 VR
13 VB
12 BLK
11 HCK1
10 HCK2
9 HST
8 RGT
7 DWN
6 EN
5 STB
4 VCK
3 VST
2 VSS
1 VDD
LCD903
EVF UNIT
C6102
2.2u
F

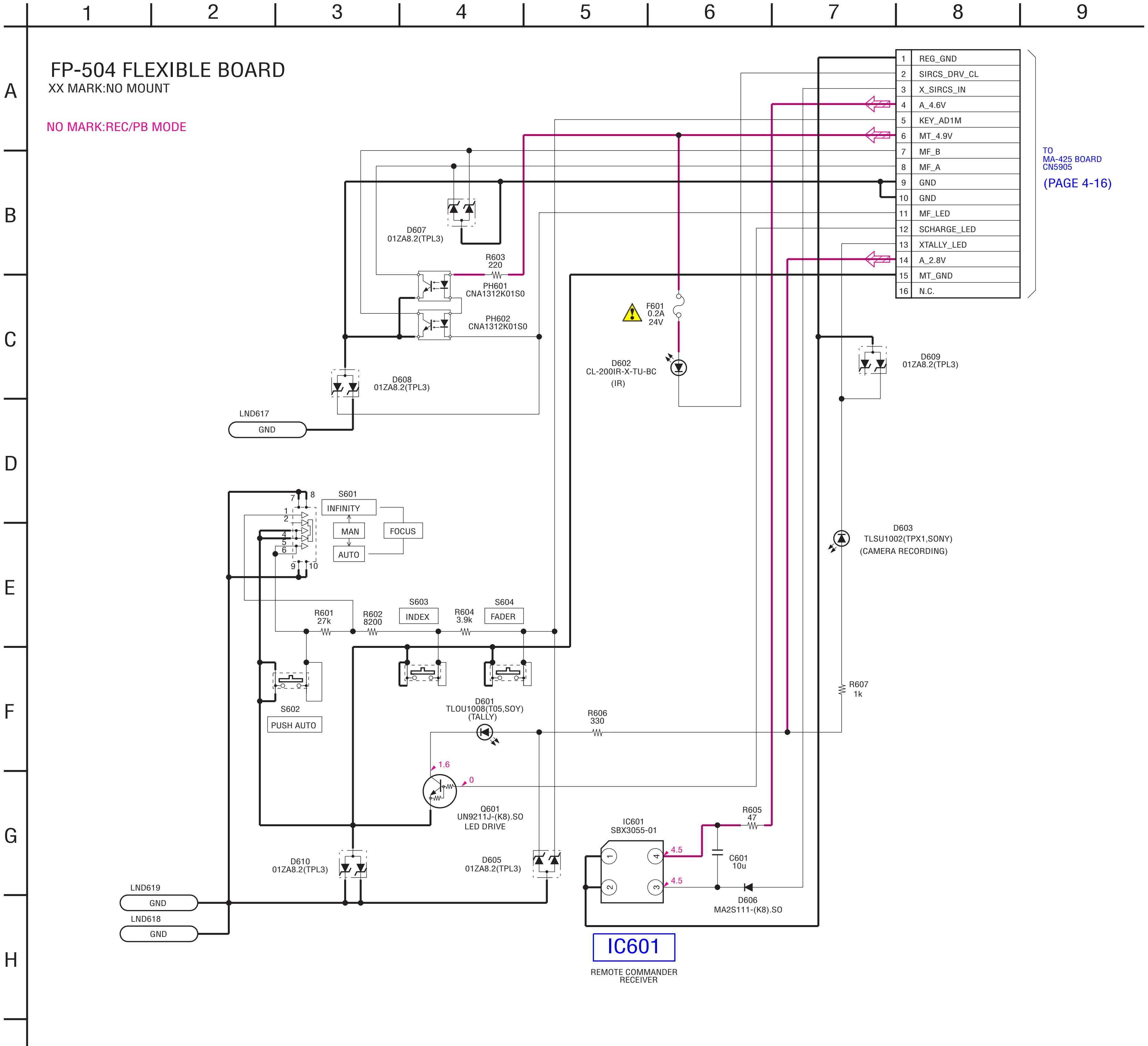
SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	

4-2. SCHEMATIC DIAGRAMS

FP-504 PRINTED WIRING BOARD

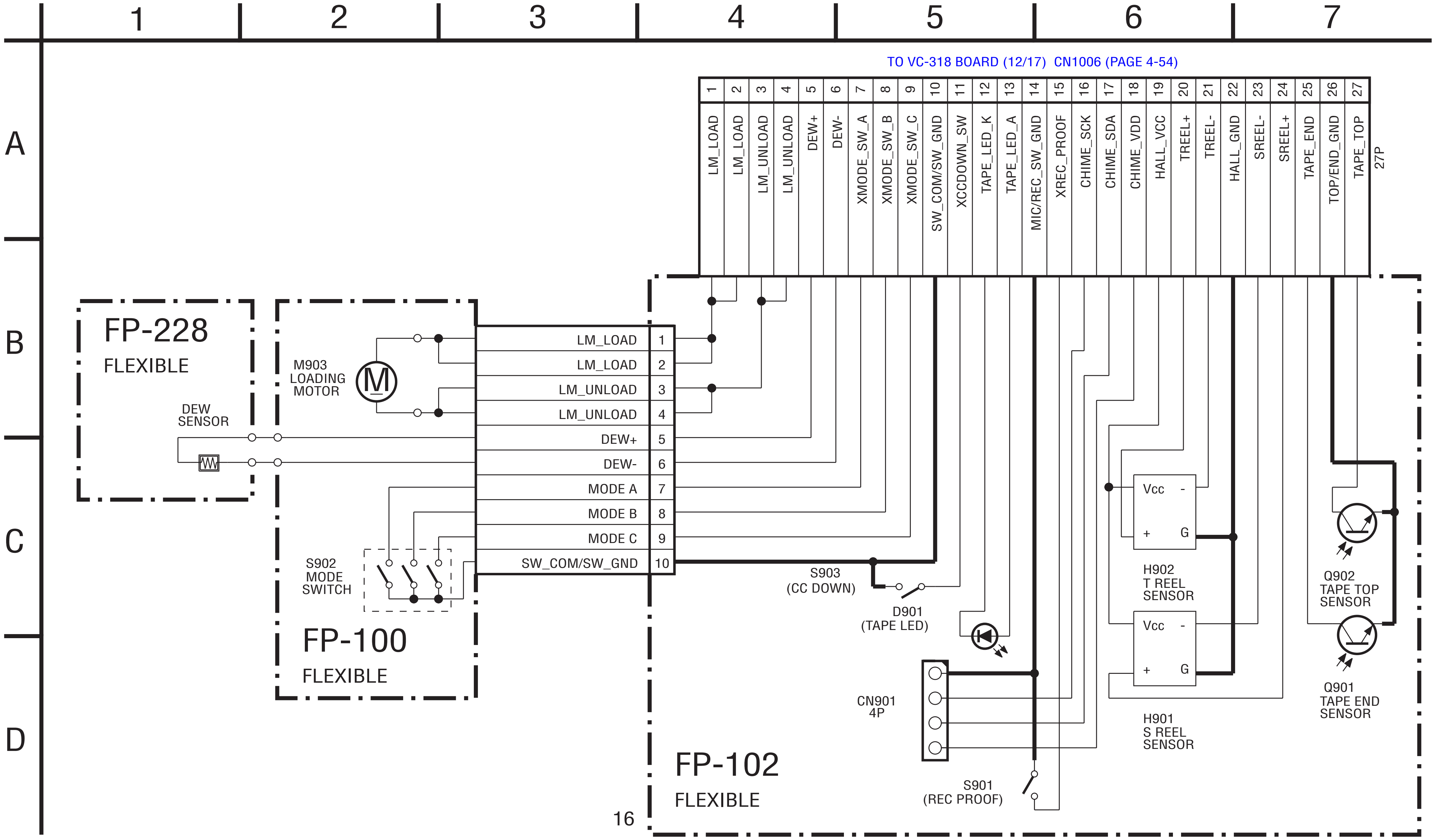
For Schematic Diagram
- Refer to page 4-109 for printed wiring board.


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
FP-504 FLEXIBLE BOARD
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
1 REG_GND
2 SIRCS_DRV_CL
3 X_SIRCS_IN
4 A_4.6V
5 KEY_AD1M
6 MT_4.9V
7 MF_B
8 MF_A
9 GND
10 GND
11 MF_LED
12 SCHARGE_LED
13 XTALLY_LED
14 A_2.8V
15 MT_GND
16 N.C.
TO
MA-425 BOARD
CN5905
(PAGE 4-16)
D607
01ZA8.2(TPL3)
R603
220
PH601
CNA1312K01S0
PH602
CNA1312K01S0
F601
0.2A
24V
D602
CL-200IR-X-TU-BC
(IR)
D609
01ZA8.2(TPL3)
D608
01ZA8.2(TPL3)
LND617
GND
S601
INFINITY
MAN
FOCUS
AUTO
D603
TLSU1002(TPX1,SONY)
(CAMERA RECORDING)
S603
INDEX
S604
FADER
R601
27k
R602
8200
R604
3.9k
S602
PUSH AUTO
D601
TLOU1008(T05,SOY)
(TALLY)
R606
330
R607
1k
1.6
0
Q601
UN9211J-(K8).SO
LED DRIVE
IC601
SBX3055-01
R605
47
4.5
4.5
C601
10u
D610
01ZA8.2(TPL3)
D605
01ZA8.2(TPL3)
D606
MA2S111-(K8).SO
LND619
GND
LND618
GND
IC601
REMOTE COMMANDER
RECEIVER

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

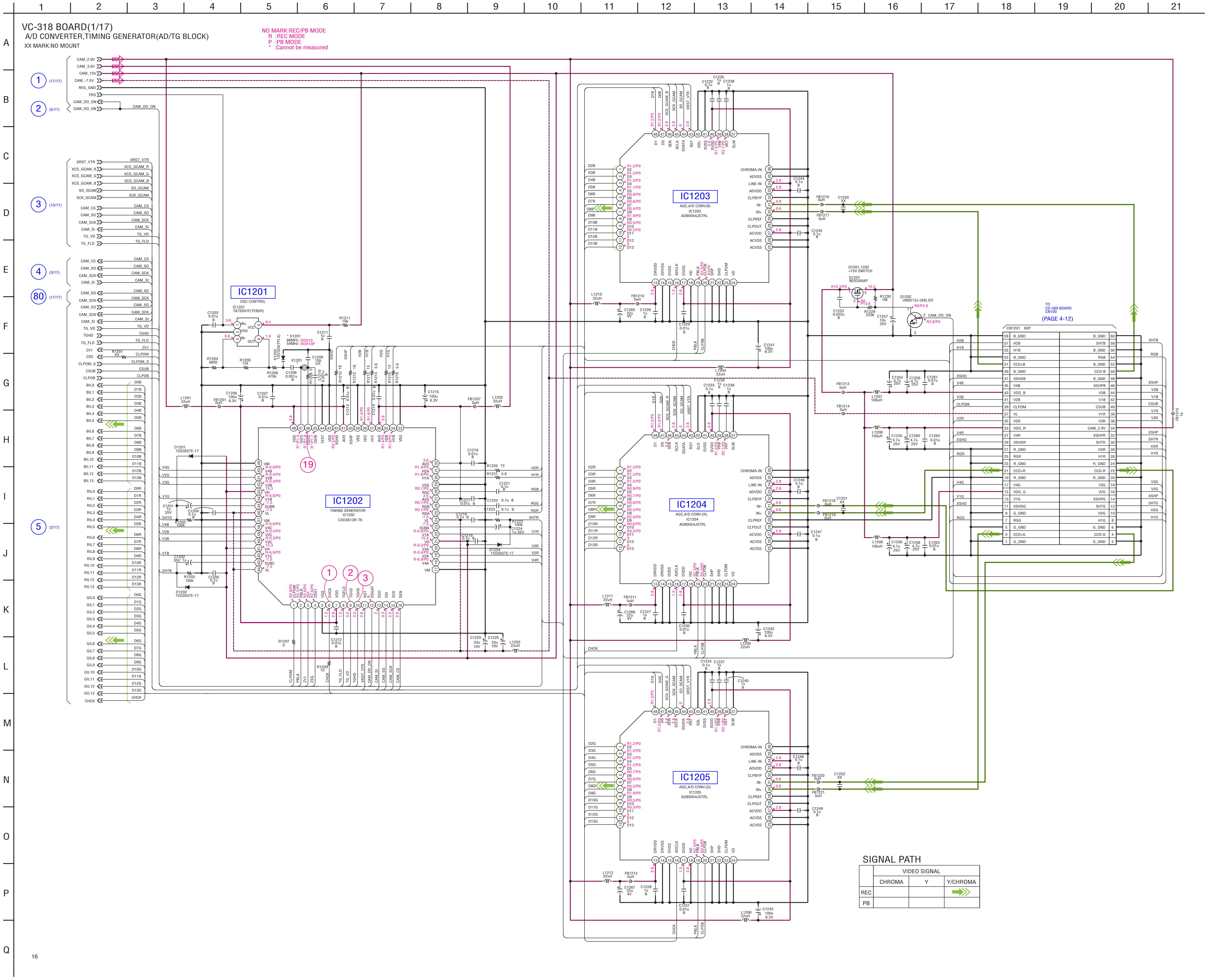
4-2. SCHEMATIC DIAGRAMS

FP-100, FP-228, FP-102 FLEXIBLE BOARD


1
2
3
4
5
6
7
A
B
C
D
TO VC-318 BOARD (12/17) CN1006 (PAGE 4-54)
1 LM_LOAD
2 LM_LOAD
3 LM_UNLOAD
4 LM_UNLOAD
5 DEW+
6 DEW-
7 XMODE_SW_A
8 XMODE_SW_B
9 XMODE_SW_C
10 SW_COM/SW_GND
11 XCCDOWN_SW
12 TAPE_LED_K
13 TAPE_LED_A
14 MIC/REC_SW_GND
15 XREC_PROOF
16 CHIME_SCK
17 CHIME_SDA
18 CHIME_VDD
19 HALL_VCC
20 TREEL+
21 TREEL-
22 HALL_GND
23 SREEL-
24 SREEL+
25 TAPE_END
26 TOP/END_GND
27 TAPE_TOP
27P
FP-228
FLEXIBLE
DEW SENSOR
M903
LOADING
MOTOR
M
LM_LOAD 1
LM_LOAD 2
LM_UNLOAD 3
LM_UNLOAD 4
DEW+ 5
DEW- 6
MODE A 7
MODE B 8
MODE C 9
SW_COM/SW_GND 10
S902
MODE
SWITCH
FP-100
FLEXIBLE
S903
(CC DOWN)
D901
(TAPE LED)
CN901
4P
S901
(REC PROOF)
Vcc
-
+
G
H902
T REEL
SENSOR
H901
S REEL
SENSOR
Q902
TAPE TOP
SENSOR
Q901
TAPE END
SENSOR
FP-102
FLEXIBLE
16

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.
- Refer to pages 4-129 and 130 for waveforms.

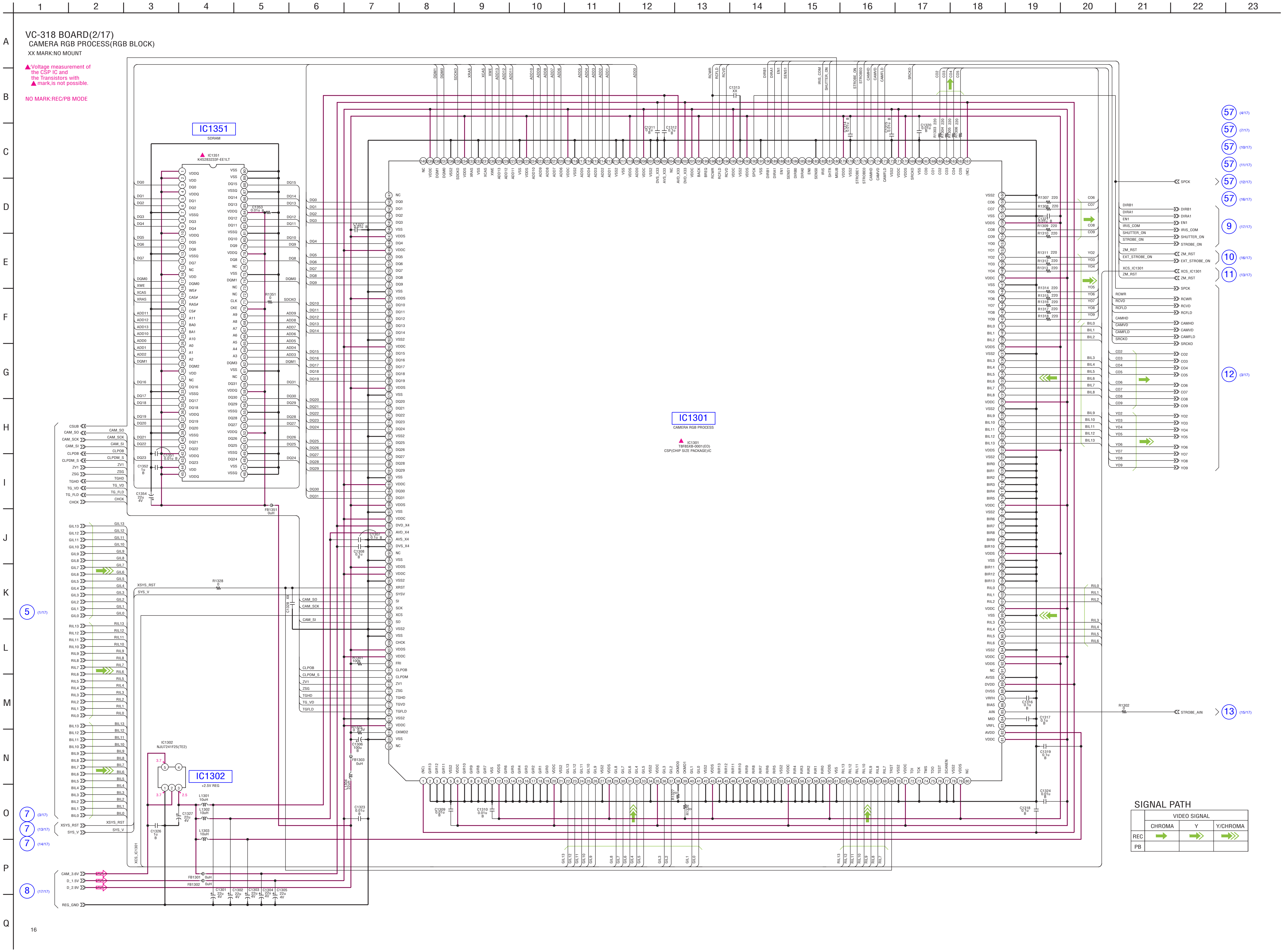

VC-318 BOARD(1/17)
A/D CONVERTER,TIMING GENERATOR(AD/TG BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
* :Cannot be measured
IC1201
DSC CONTROL
IC1201 TA75S01F(TE85R)
IC1202
TIMING GENERATOR
IC1202 CXD3613R-T6
IC1203
AGC,A/D CONV.(B)
IC1203 AD80054JSTRL
IC1204
AGC,A/D CONV.(R)
IC1204 AD80054JSTRL
IC1205
AGC,A/D CONV.(G)
IC1205 AD80054JSTRL
Q1201,1202 +15V SWITCH
TO CD-389 BOARD CN100 (PAGE 4-12)
CN1201 60P
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB			

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.

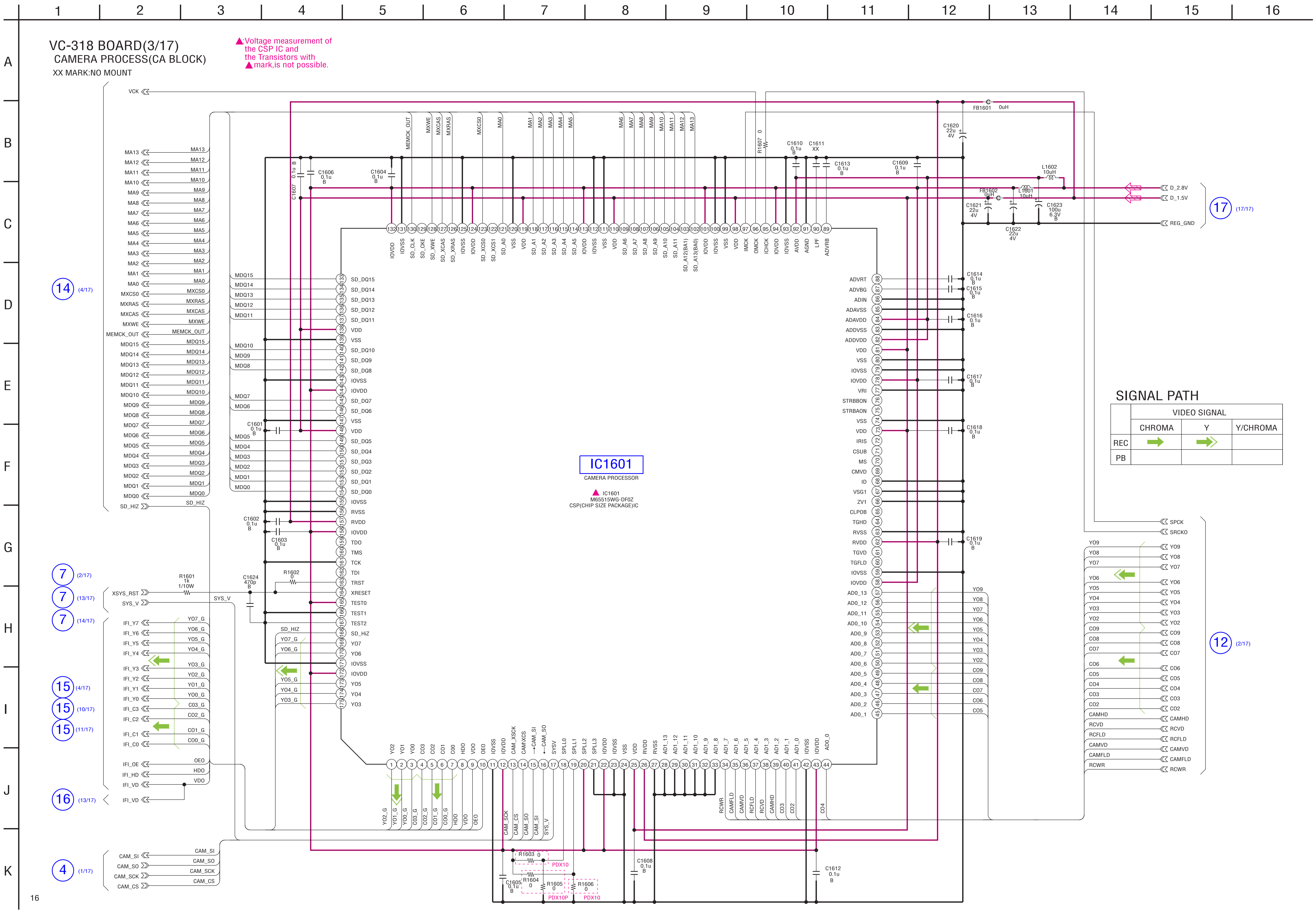

VC-318 BOARD(2/17)
CAMERA RGB PROCESS(RGB BLOCK)
XX MARK:NO MOUNT
▲Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
NO MARK:REC/PB MODE
IC1351
SDRAM
IC1351 K4S283232F-EE1LT
IC1301
CAMERA RGB PROCESS
IC1301 T8F85XB-0001(EO)
CSP(CHIP SIZE PACKAGE)IC
IC1302
+2.5V REG
IC1302 NJU7241F25(TE2)
CSUB
CAM_SO
CAM_SCK
CAM_SI
CLPOB
CLPDM_S
ZV1
ZSG
TGHD
TG_VD
TG_FLD
CHCK
XSYS_RST
SYS_V
CAM_3.6V
D_1.5V
D_2.9V
REG_GND
SPCK
DIRB1
DIRA1
EN1
IRIS_COM
SHUTTER_ON
STROBE_ON
ZM_RST
EXT_STROBE_ON
XCS_IC1301
RCWR
RCVD
RCFLD
CAMHD
CAMVD
CAMFLD
SRCKO
STROBE_AIN
5 (1/17)
7 (3/17)
7 (13/17)
7 (14/17)
8 (17/17)
57 (4/17)
57 (7/17)
57 (10/17)
57 (11/17)
57 (12/17)
57 (16/17)
9 (17/17)
10 (16/17)
11 (13/17)
12 (3/17)
13 (15/17)
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
16
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB

COVER

4-2. SCHEMATIC DIAGRAMS | VC-318 BOARD SIDE A | VC-318 BOARD SIDE B

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.



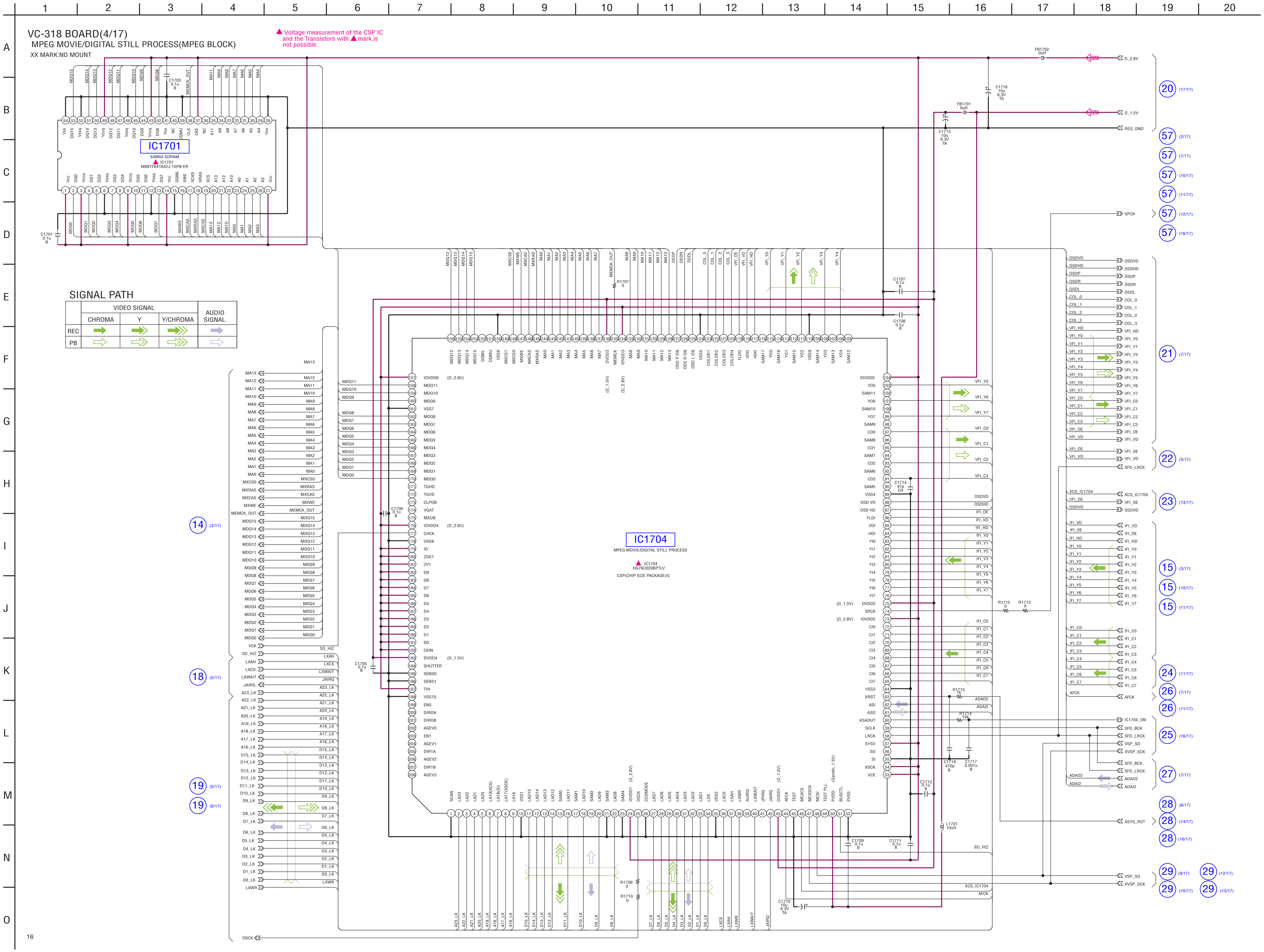
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
K
VC-318 BOARD(3/17)
CAMERA PROCESS(CA BLOCK)
XX MARK:NO MOUNT
▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
IC1601
CAMERA PROCESSOR
▲ IC1601 M65515WG-DF0Z CSP(CHIP SIZE PACKAGE)IC
14 (4/17)
7 (2/17)
7 (13/17)
7 (14/17)
15 (4/17)
15 (10/17)
15 (11/17)
16 (13/17)
4 (1/17)
17 (17/17)
12 (2/17)
VCK
D_2.8V
D_1.5V
REG_GND
SPCK
SRCKO
XSYS_RST
SYS_V
CAM_SI
CAM_SO
CAM_SCK
CAM_CS
IFI_VD
FB1601 0uH
FB1602 0uH
L1601 10uH
L1602 10uH
C1620 22u 4V
C1621 22u 4V
C1622 22u 4V
C1623 100u 6.3V B
R1601 1k 1/10W
R1602 0
R1603 0
R1604 0
R1605 0
R1606 0
R1607 0
C1601 0.1u B
C1602 0.1u B
C1603 0.1u B
C1604 0.1u B
C1605 0.1u B
C1606 0.1u B
C1607 0.1u B
C1608 0.1u B
C1609 0.1u B
C1610 0.1u B
C1611 XX
C1612 0.1u B
C1613 0.1u B
C1614 0.1u B
C1615 0.1u B
C1616 0.1u B
C1617 0.1u B
C1618 0.1u B
C1619 0.1u B
C1624 470p B
PDX10
PDX10P
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	
PB			

For Schematic Diagram

• Refer to page 4-119 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N O
VC-318 BOARD(4/17)
MPEG MOVIE/DIGITAL STILL PROCESS(MPEG BLOCK)
XX MARK:NO MOUNT
▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
IC1701
64Mbit SDRAM
▲ IC1701
MB81F641642J-15PB-ER
IC1704
MPEG MOVIE/DIGITAL STILL PROCESS
▲ IC1704
HG76C020BPTLV
CSP(CHIP SIZE PACKAGE)IC
C1701 0.1u B
C1703 0.1u B
C1705 0.1u B
C1706 0.1u B
C1707 0.1u B
C1708 0.1u B
C1709 0.1u B
C1710 10u 6.3V TA
C1711 0.1u B
C1712 0.1u B
C1713 10u 6.3V TA
C1714 47p CH
C1716 10u 6.3V TA
C1717 0.001u B
C1718 470p B
FB1701 0uH
FB1702 0uH
L1701 10uH
R1707 0
R1709 0
R1710 0
R1712 0
R1713 0
R1714 10k
R1715 1k
D_2.8V
D_1.5V
REG_GND
SPCK
SD_HIZ
XCS_IC1704
AFCK
XSYS_RST
VSP_SO
XVSP_SCK
DSCK
(D_2.8V)
(D_1.5V)
20 (17/17)
57 (2/17)
57 (7/17)
57 (10/17)
57 (11/17)
57 (12/17)
57 (16/17)
21 (7/17)
22 (5/17)
23 (13/17)
15 (3/17)
15 (10/17)
15 (11/17)
24 (11/17)
26 (7/17)
26 (11/17)
25 (16/17)
27 (7/17)
28 (6/17)
28 (14/17)
28 (16/17)
29 (9/17)
29 (10/17)
29 (12/17)
29 (13/17)
14 (3/17)
18 (5/17)
19 (5/17)
19 (6/17)
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡➡	➡
PB	⇨	⇨	⇨⇨	⇨

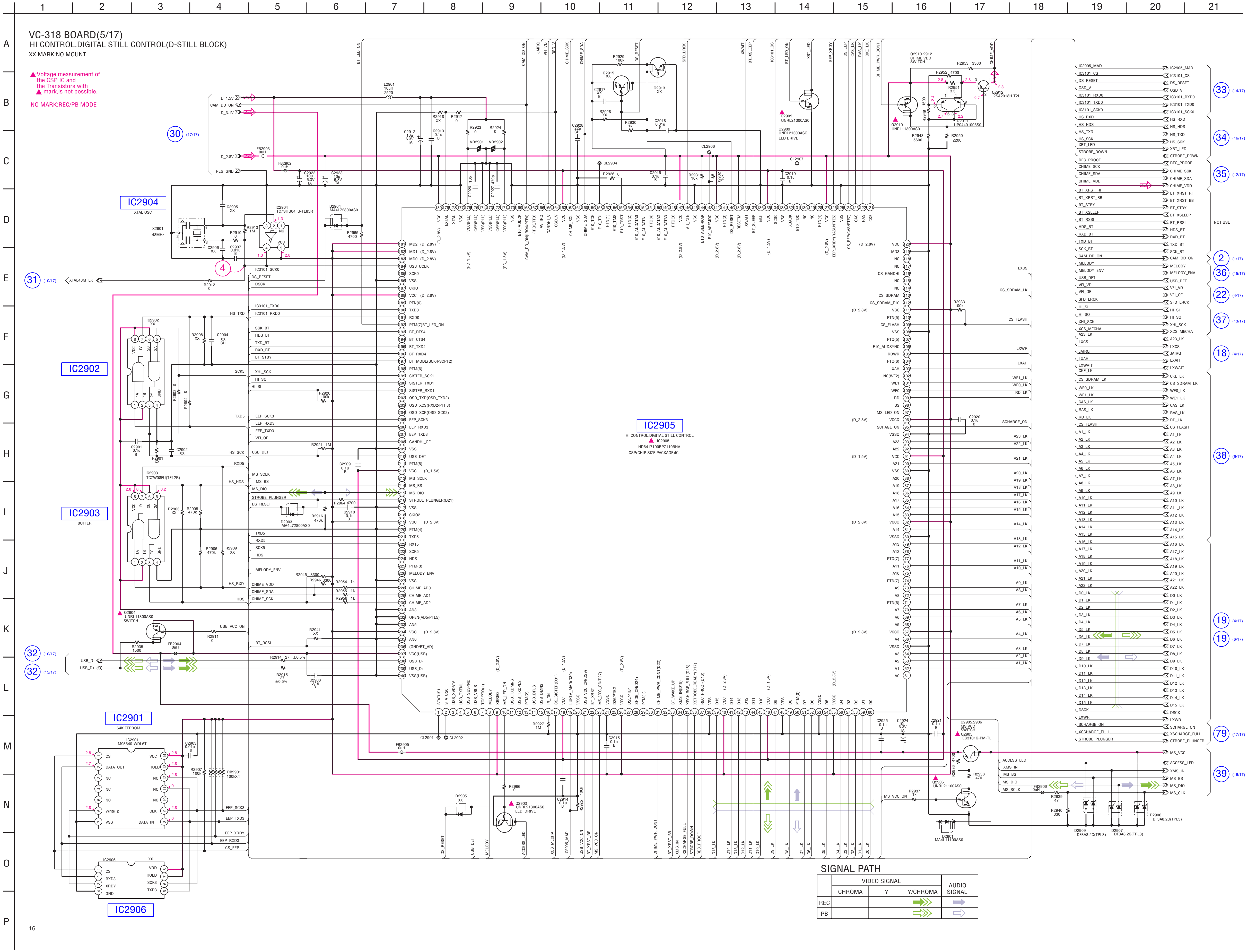
COVER

4-2. SCHEMATIC DIAGRAMS

VC-318 BOARD SIDE A | VC-318 BOARD SIDE B

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.
- Refer to page 4-129 for waveforms.


VC-318 BOARD(5/17)
HI CONTROL.DIGITAL STILL CONTROL(D-STILL BLOCK)
XX MARK:NO MOUNT
▲Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.
NO MARK:REC/PB MODE
IC2904
XTAL OSC
IC2902
IC2903
BUFFER
IC2901
64K EEPROM
IC2906
IC2905
HI CONTROL.DIGITAL STILL CONTROL
HD6417190BPZ110BHV
CSP(CHIP SIZE PACKAGE)IC
X2901 48MHz
Q2904 UNRL11300AS0 SWITCH
Q2909 UNRL21300AS0 LED DRIVE
Q2910 UNRL11300AS0
Q2911 UP04401008S0
Q2912 2SA2018H-T2L
Q2910-2912 CHIME VDD SWITCH
Q2903 UNRL21300AS0 LED_DRIVE
Q2905,2906 MS VCC SWITCH
Q2905 EC3101C-PM-TL
Q2906 UNRL21100AS0
D2901 MA4L11100AS0
D2903 MA4L72800AS0
D2904 MA4L72800AS0
D2906 DF3A8.2C(TPL3)
D2907 DF3A8.2C(TPL3)
D2909 DF3A8.2C(TPL3)
IC2901 M95640-WDL6T
IC2903 TC7W08FU(TE12R)
IC2904 TC7SHU04FU-TE85R
30 (17/17)
31 (10/17)
32 (10/17)
32 (15/17)
33 (14/17)
34 (16/17)
35 (12/17)
2 (1/17)
36 (15/17)
22 (4/17)
37 (13/17)
18 (4/17)
38 (6/17)
19 (4/17)
19 (6/17)
79 (17/17)
39 (16/17)
NOT USE
XTAL48M_LK
USB_D-
USB_D+
D_1.5V
CAM_DD_ON
D_3.1V
D_2.8V
REG_GND
MS_VCC
ACCESS_LED
XMS_IN
MS_BS
MS_DIO
MS_CLK
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

COVER

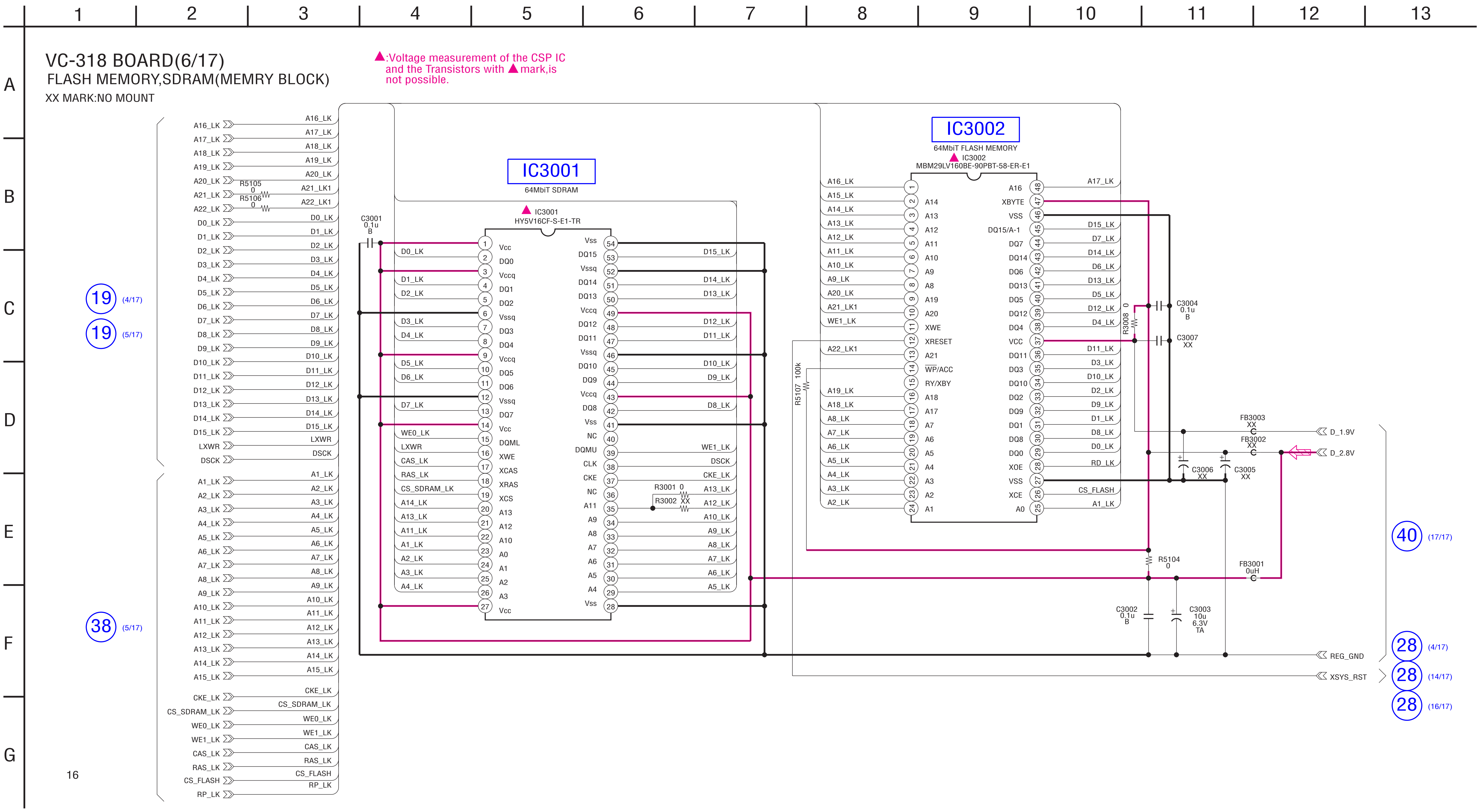
4-2. SCHEMATIC DIAGRAMS | VC-318 BOARD SIDE A | VC-318 BOARD SIDE B

For Schematic Diagram
- Refer to page 4-119 for printed wiring board.

VC-318 BOARD(6/17)
FLASH MEMORY,SDRAM(MEMRY BLOCK)

XX MARK:NO MOUNT

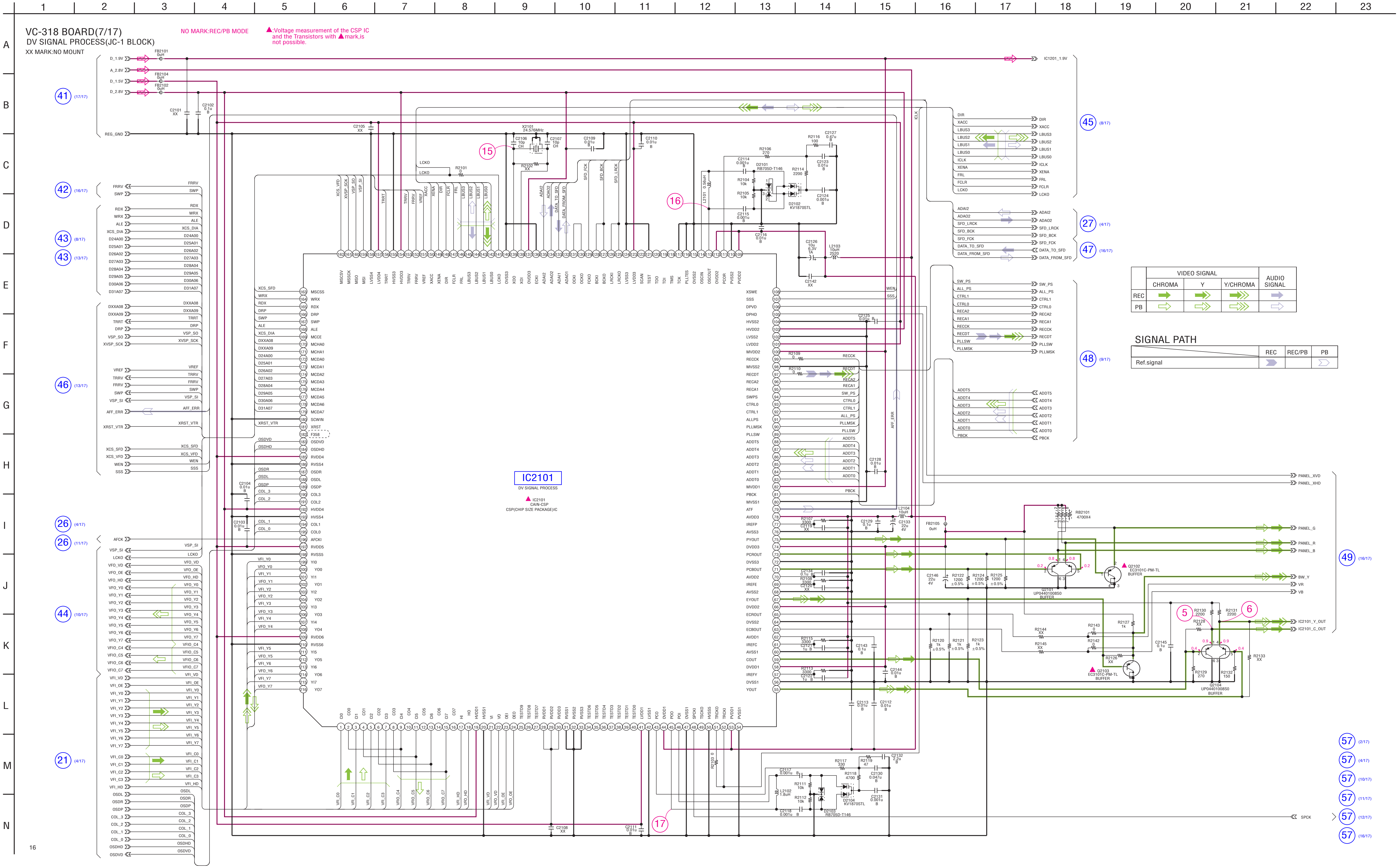
▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
19 (4/17)
19 (5/17)
38 (5/17)
16
A16_LK
A17_LK
A18_LK
A19_LK
A20_LK
A21_LK
A22_LK
R5105 0
R5106 0
A21_LK1
A22_LK1
D0_LK
D1_LK
D2_LK
D3_LK
D4_LK
D5_LK
D6_LK
D7_LK
D8_LK
D9_LK
D10_LK
D11_LK
D12_LK
D13_LK
D14_LK
D15_LK
LXWR
DSCK
A1_LK
A2_LK
A3_LK
A4_LK
A5_LK
A6_LK
A7_LK
A8_LK
A9_LK
A10_LK
A11_LK
A12_LK
A13_LK
A14_LK
A15_LK
CKE_LK
CS_SDRAM_LK
WE0_LK
WE1_LK
CAS_LK
RAS_LK
CS_FLASH
RP_LK
C3001 0.1u B
IC3001
64MbiT SDRAM
▲ IC3001
HY5V16CF-S-E1-TR
Vcc
DQ0
Vccq
DQ1
DQ2
Vssq
DQ3
DQ4
Vccq
DQ5
DQ6
Vssq
DQ7
Vcc
DQML
XWE
XCAS
XRAS
XCS
A13
A12
A10
A0
A1
A2
A3
Vcc
Vss
DQ15
Vssq
DQ14
DQ13
Vccq
DQ12
DQ11
Vssq
DQ10
DQ9
Vccq
DQ8
Vss
NC
DQMU
CLK
CKE
NC
A11
A9
A8
A7
A6
A5
A4
Vss
R3001 0
R3002 XX
IC3002
64MbiT FLASH MEMORY
▲ IC3002
MBM29LV160BE-90PBT-58-ER-E1
A14
A13
A12
A11
A10
A9
A8
A19
A20
XWE
XRESET
A21
WP/ACC
RY/XBY
A18
A17
A7
A6
A5
A4
A3
A2
A1
A16
XBYTE
VSS
DQ15/A-1
DQ7
DQ14
DQ6
DQ13
DQ5
DQ12
DQ4
VCC
DQ11
DQ3
DQ10
DQ2
DQ9
DQ1
DQ8
DQ0
XOE
VSS
XCE
A0
A15_LK
A20_LK
A21_LK1
WE1_LK
A22_LK1
RD_LK
R5107 100k
R3008 0
C3004 0.1u B
C3007 XX
FB3003 XX
FB3002 XX
C3006 XX
C3005 XX
D_1.9V
D_2.8V
R5104 0
FB3001 0uH
C3002 0.1u B
C3003 10u 6.3V TA
REG_GND
XSYS_RST
40 (17/17)
28 (4/17)
28 (14/17)
28 (16/17)

COVER

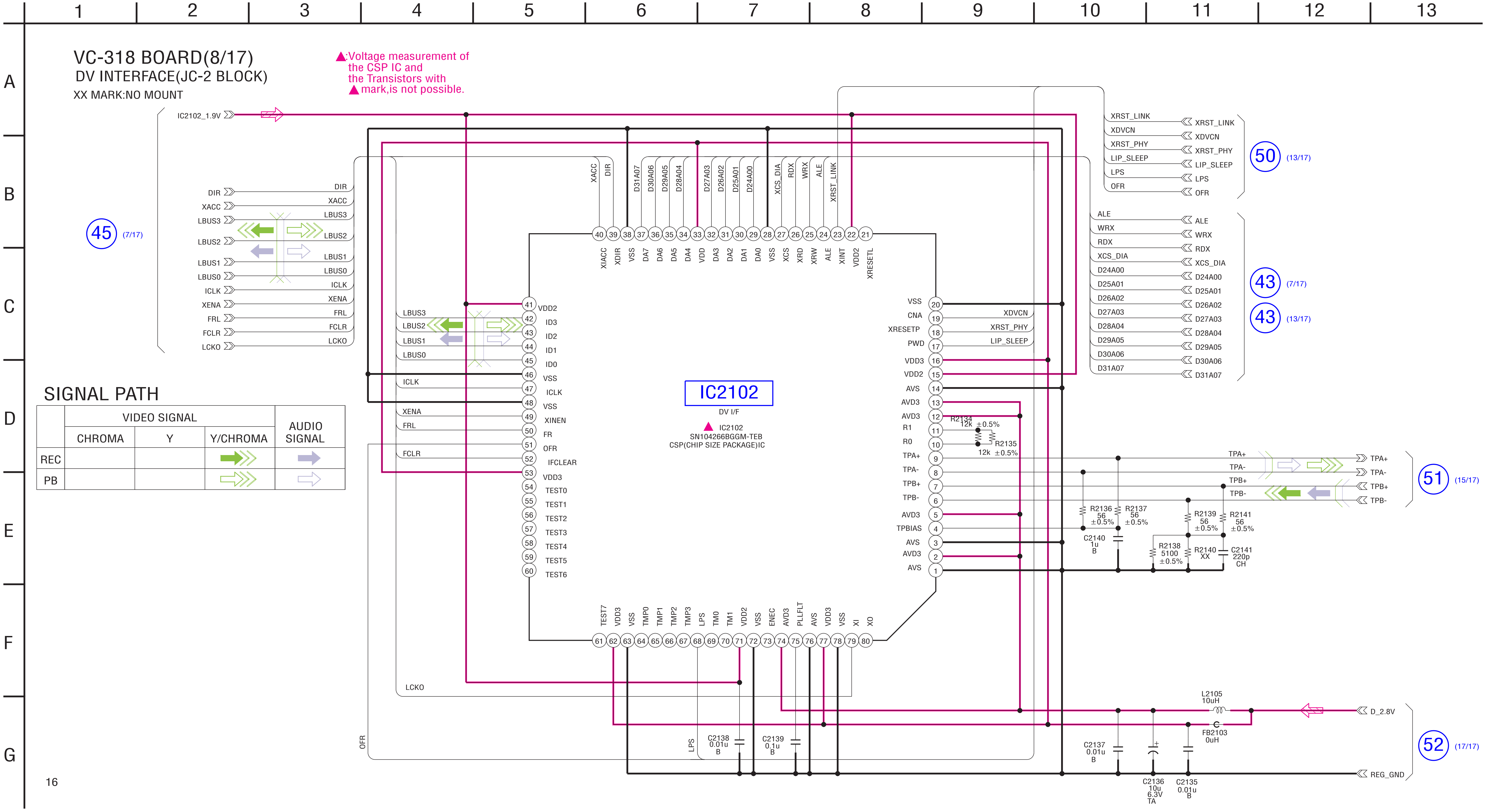
4-2. SCHEMATIC DIAGRAMS | VC-318 BOARD SIDE A | VC-318 BOARD SIDE B

For Schematic Diagram
- Refer to page 4-119 for printed wiring board.
- Refer to page 4-130 for waveforms.


VC-318 BOARD(7/17)
DV SIGNAL PROCESS(JC-1 BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
IC2101
DV SIGNAL PROCESS
▲IC2101
CAIN-CSP
CSP(CHIP SIZE PACKAGE)IC
X2101 24.576MHz
D2101 RB705D-T146
D2102 KV1870STL
D2103 RB705D-T146
D2104 KV1870STL
Q2101 UP04401008S0 BUFFER
Q2102 EC3101C-PM-TL BUFFER
Q2103 EC3101C-PM-TL BUFFER
Q2104 UP04401008S0 BUFFER
RB2101 4700X4
FB2101 0uH
FB2102 0uH
FB2104 0uH
FB2105 0uH
D_1.9V
A_2.8V
D_1.5V
D_2.8V
REG_GND
IC1201_1.9V
PANEL_XVD
PANEL_XHD
PANEL_G
PANEL_R
PANEL_B
BW_Y
VR
VB
IC2101_Y_OUT
IC2101_C_OUT
SPCK
41 (17/17)
42 (16/17)
43 (8/17)
43 (13/17)
46 (13/17)
26 (4/17)
26 (11/17)
44 (10/17)
21 (4/17)
45 (8/17)
27 (4/17)
47 (16/17)
48 (8/17)
49 (16/17)
57 (2/17)
57 (4/17)
57 (10/17)
57 (11/17)
57 (12/17)
57 (16/17)
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB
SIGNAL PATH
REC
REC/PB
PB
Ref.signal
16

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.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7
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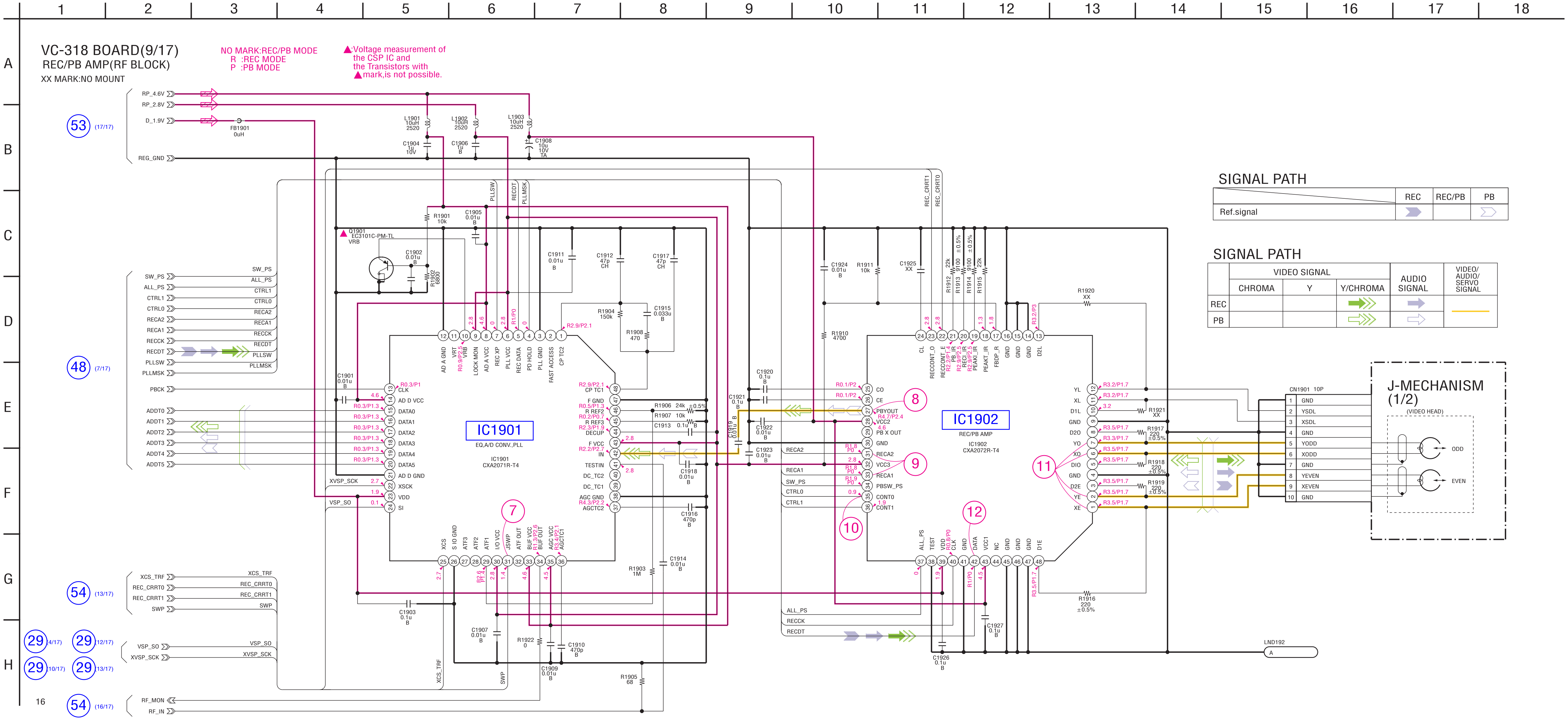
9
10
11
12
13
A
B
C
D
E
F
G
VC-318 BOARD(8/17)
DV INTERFACE(JC-2 BLOCK)
XX MARK:NO MOUNT
▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
IC2102_1.9V
45 (7/17)
DIR
XACC
LBUS3
LBUS2
LBUS1
LBUS0
ICLK
XENA
FRL
FCLR
LCKO
IC2102
DV I/F
▲ IC2102
SN104266BGGM-TEB
CSP(CHIP SIZE PACKAGE)IC
XIACC
XDIR
VSS
DA7
DA6
DA5
DA4
VDD
DA3
DA2
DA1
DA0
XCS
XRD
XRW
ALE
XINT
VDD2
XRESETL
XACC
D31A07
D30A06
D29A05
D28A04
D27A03
D26A02
D25A01
D24A00
XCS_DIA
RDX
WRX
XRST_LINK
VDD2
ID3
ID2
ID1
ID0
VSS
ICLK
XINEN
FR
OFR
IFCLEAR
VDD3
TEST0
TEST1
TEST2
TEST3
TEST4
TEST5
TEST6
TEST7
TMP0
TMP1
TMP2
TMP3
LPS
TM0
TM1
ENEC
AVD3
PLLFLT
AVS
XI
XO
CNA
XRESETP
PWD
VDD3
R1
R0
TPA+
TPA-
TPB+
TPB-
TPBIAS
XDVCN
XRST_PHY
LIP_SLEEP
OFR
50 (13/17)
43 (7/17)
43 (13/17)
51 (15/17)
52 (17/17)
R2134 12k ±0.5%
R2135 12k ±0.5%
R2136 56 ±0.5%
R2137 56 ±0.5%
R2139 56 ±0.5%
R2141 56 ±0.5%
C2140 1u B
R2138 5100 ±0.5%
R2140 XX
C2141 220p CH
L2105 10uH
FB2103 0uH
D_2.8V
REG_GND
C2137 0.01u B
C2136 10u 6.3V TA
C2135 0.01u B
C2138 0.01u B
C2139 0.1u B
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

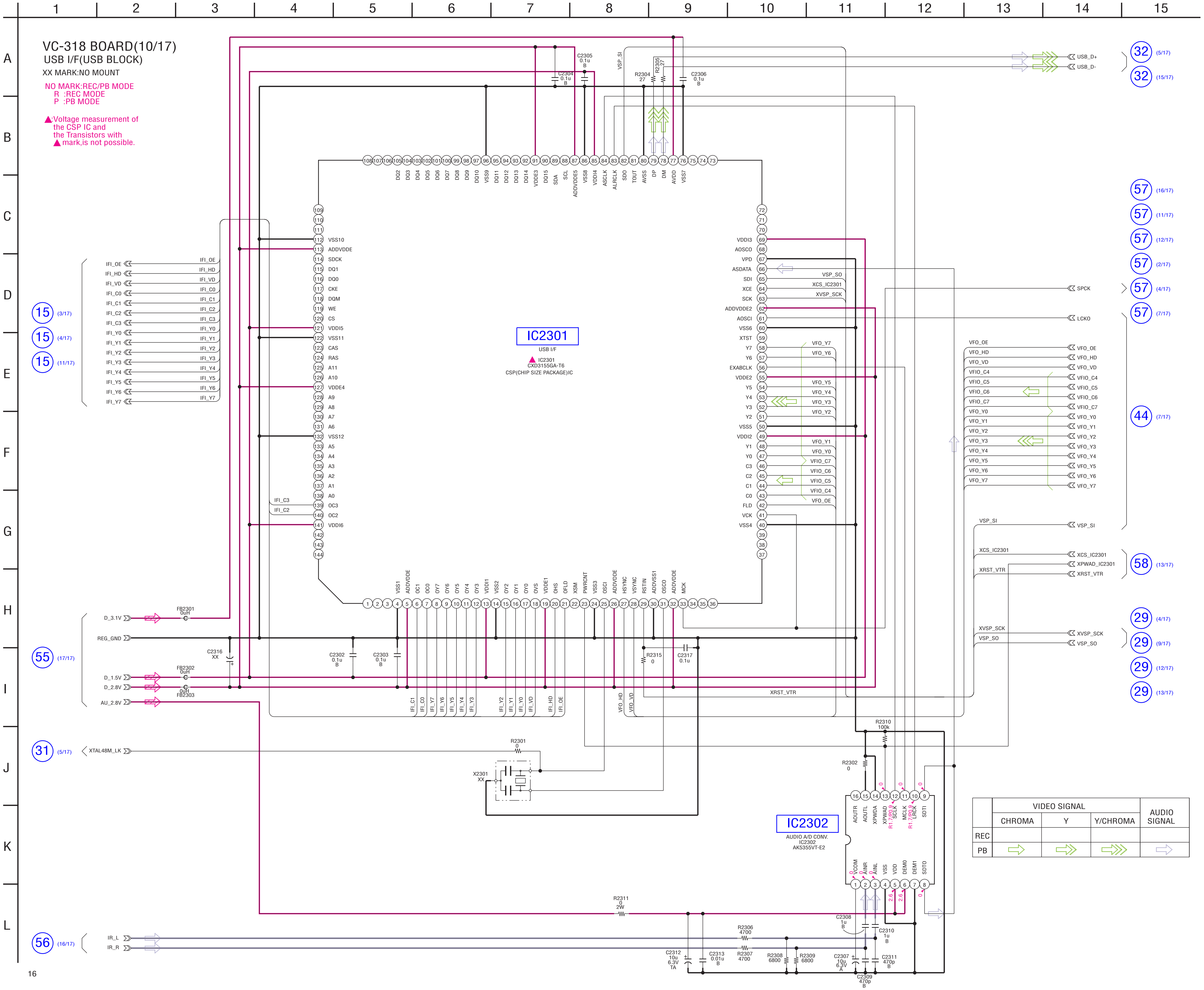
For Schematic Diagram

- Refer to page 4-119 for printed wiring board.
- Refer to page 4-129 for waveforms.


VC-318 BOARD(9/17)
REC/PB AMP(RF BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H
RP_4.6V
RP_2.8V
D_1.9V
REG_GND
FB1901 0uH
L1901 10uH 2520
L1902 10uH 2520
L1903 10uH 2520
C1904 1u 10V
C1906 1u B
C1908 10u 10V TA
53 (17/17)
48 (7/17)
54 (13/17)
29 (4/17)
29 (12/17)
29 (10/17)
29 (13/17)
54 (16/17)
SW_PS
ALL_PS
CTRL1
CTRL0
RECA2
RECA1
RECCK
RECDT
PLLSW
PLLMSK
PBCK
ADDT0
ADDT1
ADDT2
ADDT3
ADDT4
ADDT5
XCS_TRF
REC_CRRT0
REC_CRRT1
SWP
VSP_SO
XVSP_SCK
RF_MON
RF_IN
Q1901 EC3101C-PM-TL VRB
R1901 10k
C1905 0.01u B
C1902 0.01u B
R1902 6800
C1911 0.01u B
C1912 47p CH
C1917 47p CH
R1904 150k
C1915 0.033u B
R1908 470
C1901 0.01u B
IC1901
EQ.A/D CONV.,PLL
IC1901 CXA2071R-T4
AD A GND
VRT
VRB
LOCK MON
AD A VCC
REC XP
PLL VCC
REC DATA
PD HOLD
PLL GND
FAST ACCESS
CP TC2
CLK
AD D VCC
DATA0
DATA1
DATA2
DATA3
DATA4
DATA5
AD D GND
XSCK
VDD
SI
CP TC1
F GND
R REF2
R REF3
DECUP
F VCC
IN
TESTIN
DC_TC2
DC_TC1
AGC GND
AGCTC2
XCS
S IO GND
ATF3
ATF2
ATF1
I/O VCC
JSWP
ATF OUT
BUF VCC
BUF OUT
AGC VCC
AGCTC1
R1906 24k ±0.5%
R1907 10k
C1913 0.1u B
C1918 0.01u B
C1916 470p B
C1914 0.01u B
R1903 1M
C1903 0.1u B
C1907 0.01u B
R1922 0
C1910 470p B
C1909 0.01u B
R1905 68
XVSP_SCK
VSP_SO
PLLSW
RECDT
PLLMSK
XCS_TRF
SWP
C1920 0.1u B
C1921 0.1u B
C1919 0.01u B
C1922 0.01u B
C1923 0.01u B
C1924 0.01u B
R1911 10k
C1925 XX
R1910 4700
REC_CRRT1
REC_CRRT0
R1912 22k
R1913 9100 ±0.5%
R1914 9100 ±0.5%
R1915 22k
R1920 XX
IC1902
REC/PB AMP
IC1902 CXA2072R-T4
CL
RECCONT_O
RECCONT_E
PB_IR
RECI_IR
PEAKI_IR
PEAKT_IR
FBDP_R
GND
D2L
CO
CE
PBYOUT
VCC2
PB X OUT
RECA2
VCC3
RECA1
PBSW_PS
CONT0
CONT1
YL
XL
D1L
D2O
YO
XO
DIO
D2E
YE
XE
ALL_PS
TEST
VDD
CLK
DATA
VCC1
NC
D1E
RECA2
RECA1
SW_PS
CTRL0
CTRL1
ALL_PS
RECCK
RECDT
R1921 XX
R1917 220 ±0.5%
R1918 220 ±0.5%
R1919 220 ±0.5%
R1916 220 ±0.5%
C1927 0.1u B
C1926 0.1u B
LND192
CN1901 10P
1 GND
2 YSDL
3 XSDL
4 GND
5 YODD
6 XODD
7 GND
8 YEVEN
9 XEVEN
10 GND
J-MECHANISM (1/2)
(VIDEO HEAD)
ODD
EVEN
7
8
9
10
11
12
SIGNAL PATH
REC
REC/PB
PB
Ref.signal
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
VIDEO/ AUDIO/ SERVO SIGNAL
REC
PB
16

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.


1
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12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
L
IC2301
USB I/F
IC2301
CXD3155GA-T6
CSP(CHIP SIZE PACKAGE)IC
IC2302
AUDIO A/D CONV.
IC2302
AK5355VT-E2
USB_D+
USB_D-
SPCK
LCKO
VSP_SI
XCS_IC2301
XPWAD_IC2301
XRST_VTR
XVSP_SCK
VSP_SO
D_3.1V
REG_GND
D_1.5V
D_2.8V
AU_2.8V
XTAL48M_LK
IR_L
IR_R
X2301
R2301
R2302
R2310
R2311
C2302
C2303
C2316
FB2301
FB2302
FB2303
15
55
31
56
32
57
44
58
29
16

VC-318 BOARD(10/17)
USB I/F(USB BLOCK)

XX MARK:NO MOUNT

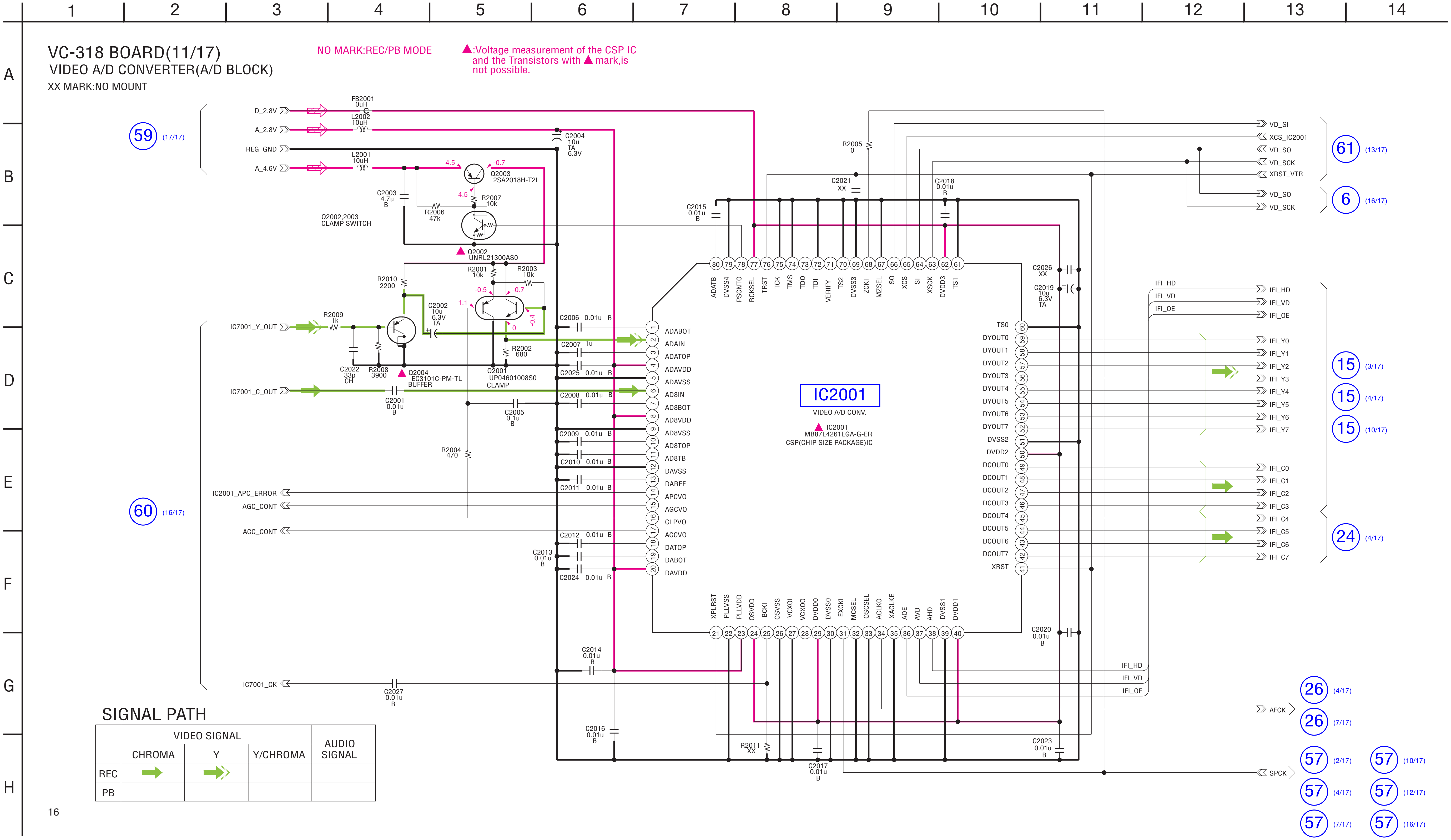
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

▲Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				
PB	⇨	⇨	⇨	⇨

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.

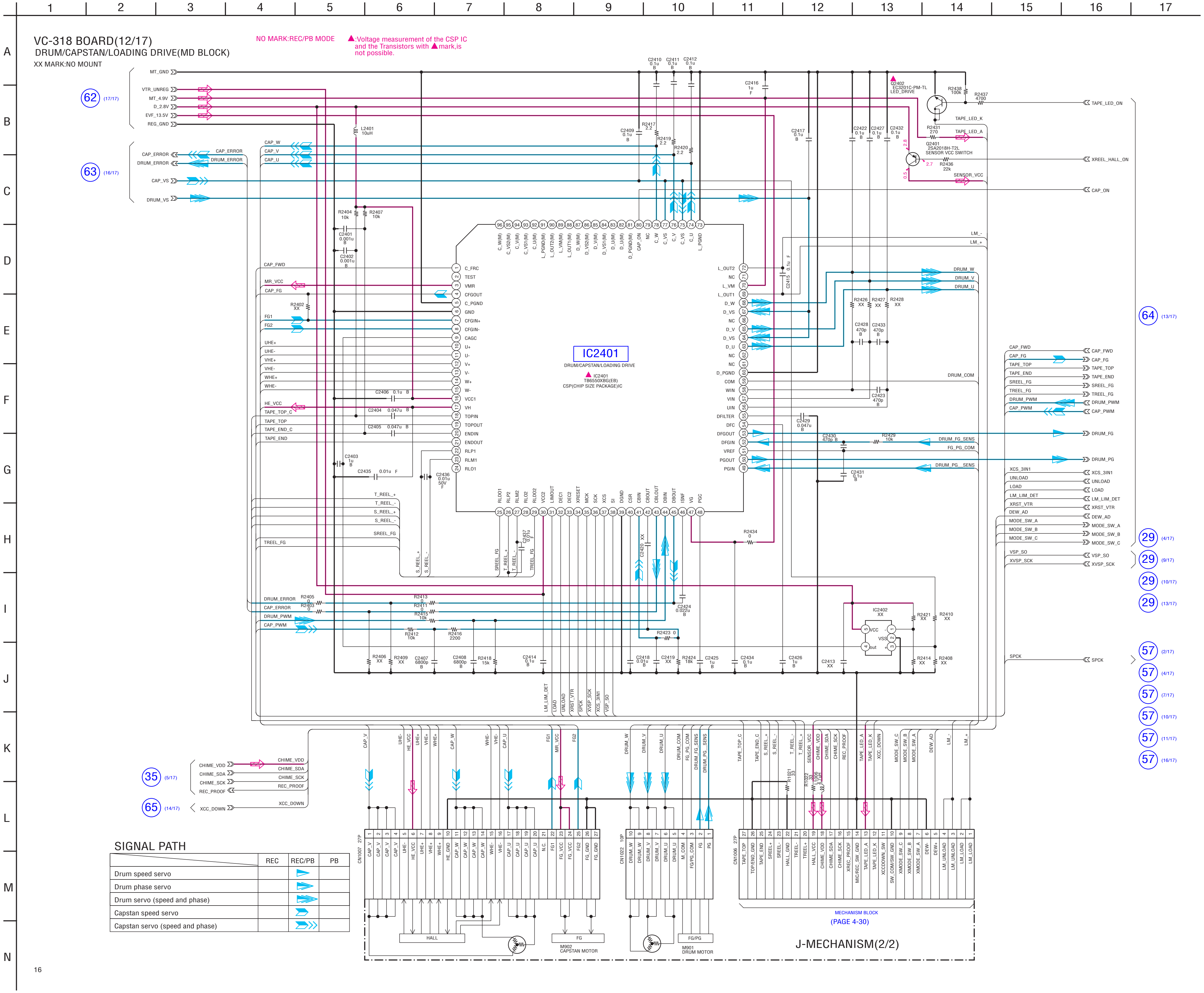

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H
VC-318 BOARD(11/17)
VIDEO A/D CONVERTER(A/D BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.
59 (17/17)
D_2.8V
A_2.8V
REG_GND
A_4.6V
FB2001 0uH
L2002 10uH
L2001 10uH
C2004 10u TA 6.3V
C2003 4.7u B
R2006 47k
R2007 10k
Q2003 2SA2018H-T2L
Q2002 UNRL21300AS0
Q2002,2003 CLAMP SWITCH
R2001 10k
R2003 10k
R2010 2200
C2002 10u 6.3V TA
R2009 1k
IC7001_Y_OUT
IC7001_C_OUT
C2022 33p CH
R2008 3900
Q2004 EC3101C-PM-TL BUFFER
Q2001 UP04601008S0 CLAMP
R2002 680
C2001 0.01u B
C2005 0.1u B
R2004 470
60 (16/17)
IC2001_APC_ERROR
AGC_CONT
ACC_CONT
IC7001_CK
C2027 0.01u B
C2006 0.01u B
C2007 1u
C2025 0.01u B
C2008 0.01u B
C2009 0.01u B
C2010 0.01u B
C2011 0.01u B
C2012 0.01u B
C2013 0.01u B
C2024 0.01u B
C2014 0.01u B
C2016 0.01u B
C2015 0.01u B
C2021 XX
R2005 0
C2018 0.01u B
C2026 XX
C2019 10u 6.3V TA
C2020 0.01u B
C2023 0.01u B
C2017 0.01u B
R2011 XX
IC2001
VIDEO A/D CONV.
▲IC2001 MB87L4261LGA-G-ER CSP(CHIP SIZE PACKAGE)IC
ADABOT ADAIN ADATOP ADAVDD ADAVSS AD8IN AD8BOT AD8VDD AD8VSS AD8TOP AD8TB DAVSS DAREF APCVO AGCVO CLPVO ACCVO DATOP DABOT DAVDD
TS0 DYOUT0 DYOUT1 DYOUT2 DYOUT3 DYOUT4 DYOUT5 DYOUT6 DYOUT7 DVSS2 DVDD2 DCOUT0 DCOUT1 DCOUT2 DCOUT3 DCOUT4 DCOUT5 DCOUT6 DCOUT7 XRST
ADATB DVSS4 PSCNTO RCKSEL TRST TCK TMS TDO TDI VERIFY TS2 DVSS3 ZCKI MZSEL SO XCS SI XSCK DVDD3 TS1
XPLRST PLLVSS PLLVDD OSVDD BCKI OSVSS VCXOI VCXOO DVDD0 DVSS0 EXCKI MCSEL OSCSEL ACLKO XACLKE AOE AVD AHD DVSS1 DVDD1
VD_SI XCS_IC2001 VD_SO VD_SCK XRST_VTR
61 (13/17)
VD_SO VD_SCK
6 (16/17)
IFI_HD IFI_VD IFI_OE
IFI_Y0 IFI_Y1 IFI_Y2 IFI_Y3 IFI_Y4 IFI_Y5 IFI_Y6 IFI_Y7
15 (3/17)
15 (4/17)
15 (10/17)
IFI_C0 IFI_C1 IFI_C2 IFI_C3 IFI_C4 IFI_C5 IFI_C6 IFI_C7
24 (4/17)
AFCK
26 (4/17)
26 (7/17)
SPCK
57 (2/17)
57 (10/17)
57 (4/17)
57 (12/17)
57 (7/17)
57 (16/17)
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡		
PB				

For Schematic Diagram

• Refer to page 4-119 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K L M N
VC-318 BOARD(12/17)
DRUM/CAPSTAN/LOADING DRIVE(MD BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
▲:Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
IC2401
DRUM/CAPSTAN/LOADING DRIVE
IC2401 TB6550XBG(EB) CSP(CHIP SIZE PACKAGE)IC
IC2402
Q2401 2SA2018H-T2L SENSOR VCC SWITCH
Q2402 EC3201C-PM-TL LED_DRIVE
L2401 10uH
MT_GND
VTR_UNREG
MT_4.9V
D_2.8V
EVF_13.5V
REG_GND
CAP_ERROR
DRUM_ERROR
CAP_VS
DRUM_VS
TAPE_LED_ON
XREEL_HALL_ON
CAP_ON
CAP_FWD
CAP_FG
TAPE_TOP
TAPE_END
SREEL_FG
TREEL_FG
DRUM_PWM
CAP_PWM
DRUM_FG
DRUM_PG
XCS_3IN1
UNLOAD
LOAD
LM_LIM_DET
XRST_VTR
DEW_AD
MODE_SW_A
MODE_SW_B
MODE_SW_C
VSP_SO
XVSP_SCK
SPCK
CHIME_VDD
CHIME_SDA
CHIME_SCK
REC_PROOF
XCC_DOWN
62 (17/17)
63 (16/17)
64 (13/17)
35 (5/17)
65 (14/17)
29 (4/17)
29 (9/17)
29 (10/17)
29 (13/17)
57 (2/17)
57 (4/17)
57 (7/17)
57 (10/17)
57 (11/17)
57 (16/17)
CN1007 27P
CN1022 10P
CN1006 27P
HALL
FG
FG/PG
M902 CAPSTAN MOTOR
M901 DRUM MOTOR
MECHANISM BLOCK
(PAGE 4-30)
J-MECHANISM(2/2)
16

SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		➡	
Drum phase servo		➡	
Drum servo (speed and phase)		➡	
Capstan speed servo		➡	
Capstan servo (speed and phase)		➡	

COVER

4-2. SCHEMATIC DIAGRAMS | VC-318 BOARD SIDE A | VC-318 BOARD SIDE B

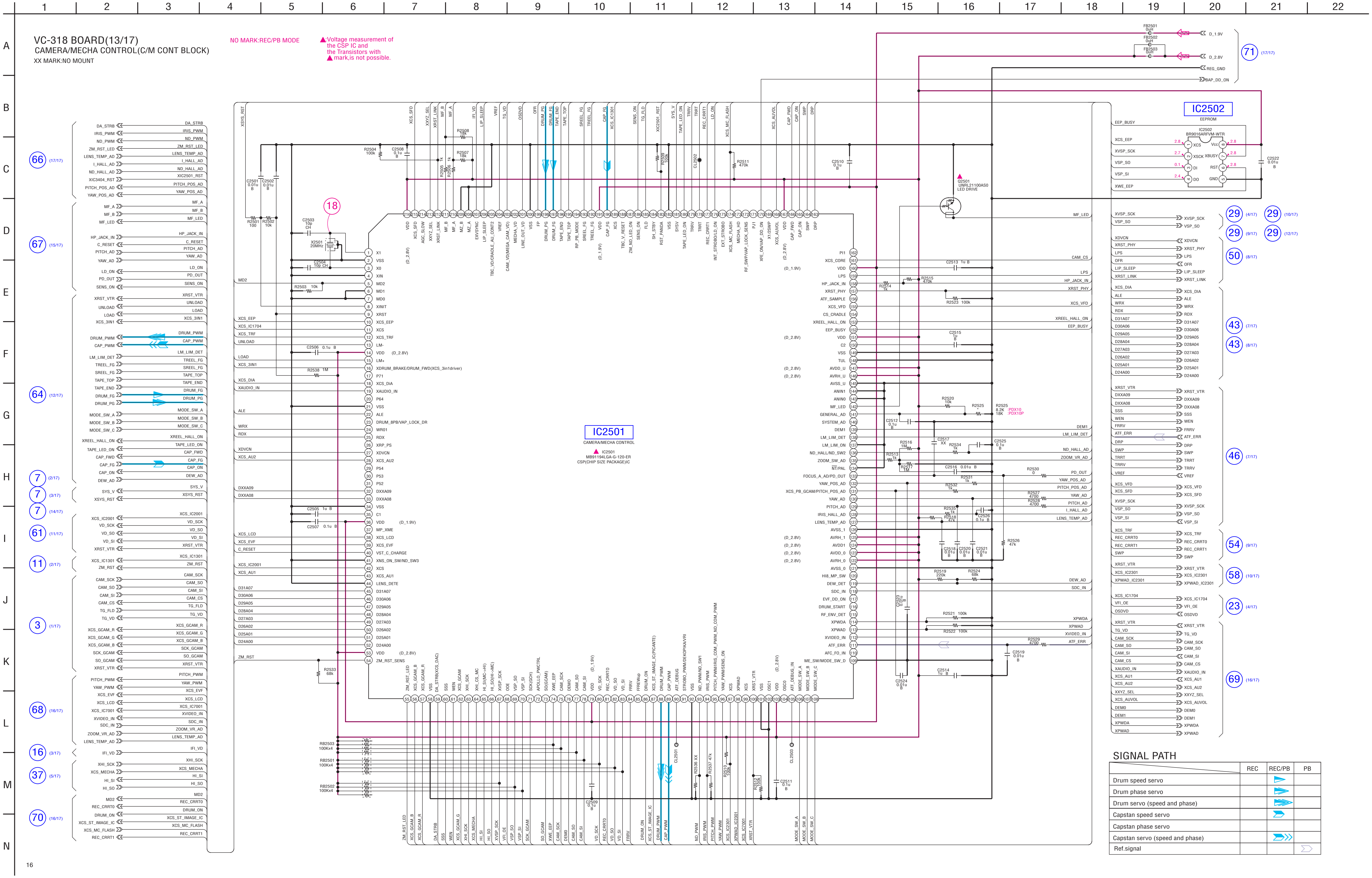
For Schematic Diagram

- Refer to page 4-119 for printed wiring board.
- Refer to page 4-130 for waveforms.

VC-318 BOARD(13/17)
CAMERA/MECHA CONTROL(C/M CONT BLOCK)
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.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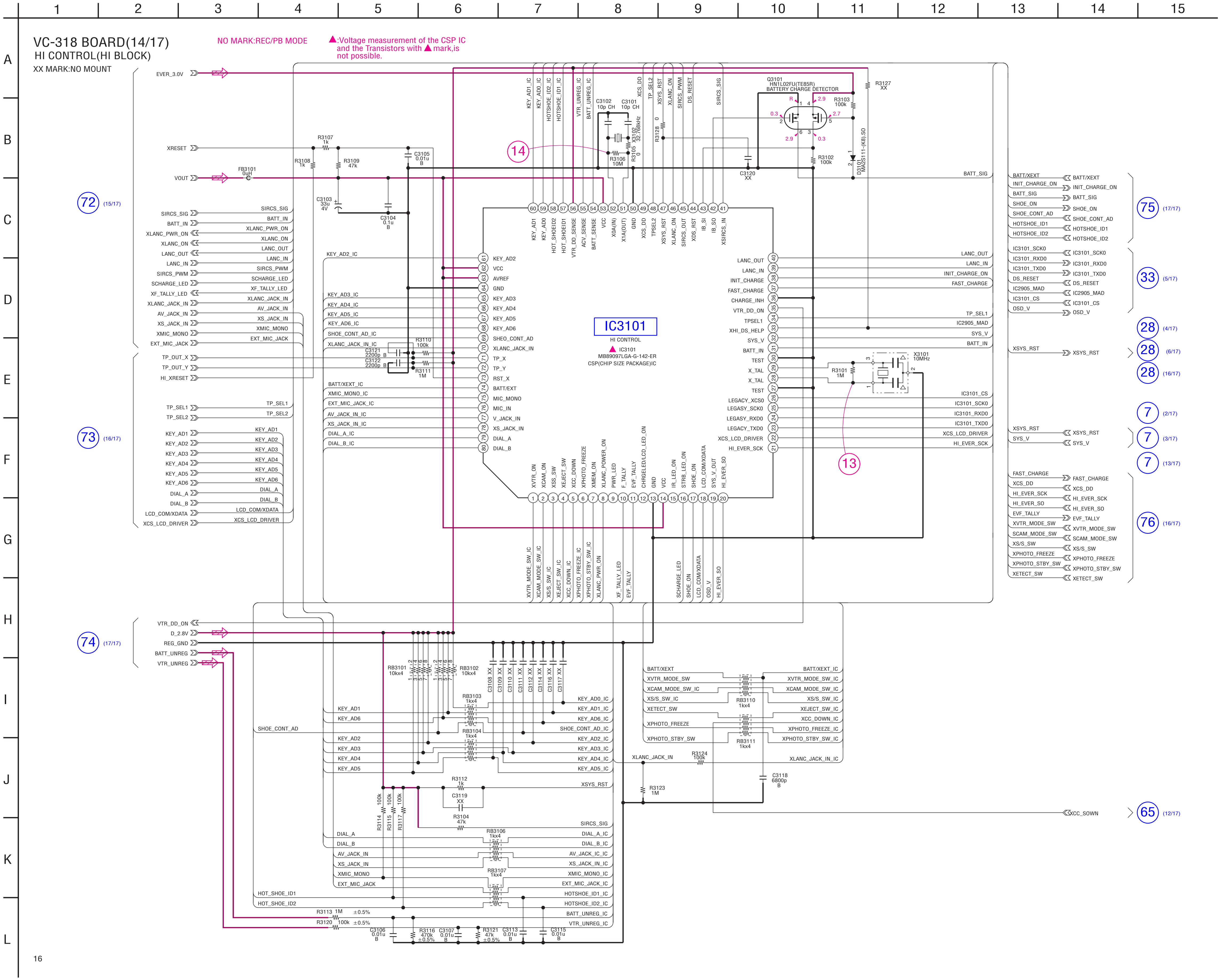
19
20
21
22
A
B
C
D
E
F
G
H
I
J
K
L
M
N
IC2501
CAMERA/MECHA CONTROL
▲ IC2501
MB91194LGA-G-120-ER
CSP(CHIP SIZE PACKAGE)IC
IC2502
EEPROM
IC2502
BR9016ARFVM-WTR
Q2501
UNRL21100AS0
LED DRIVE
X2501
20MHz
FB2501
FB2502
FB2503
D_1.9V
D_2.8V
REG_GND
BAP_DD_ON
R2525
8.2K :PDX10
18K :PDX10P
(18)
(66) (17/17)
(67) (15/17)
(64) (12/17)
(7) (2/17)
(7) (3/17)
(7) (14/17)
(61) (11/17)
(11) (2/17)
(3) (1/17)
(68) (16/17)
(16) (3/17)
(37) (5/17)
(70) (16/17)
(71) (17/17)
(29) (4/17)
(29) (10/17)
(29) (9/17)
(29) (12/17)
(50) (8/17)
(43) (7/17)
(43) (8/17)
(46) (7/17)
(54) (9/17)
(58) (10/17)
(23) (4/17)
(69) (16/17)
16

SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶▷	
Drum servo (speed and phase)		▶▷▷	
Capstan speed servo		➤	
Capstan phase servo			
Capstan servo (speed and phase)		➤》	
Ref.signal			▷

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.
- Refer to page 4-130 for waveforms.



VC-318 BOARD(14/17)
HI CONTROL(HI BLOCK)

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.

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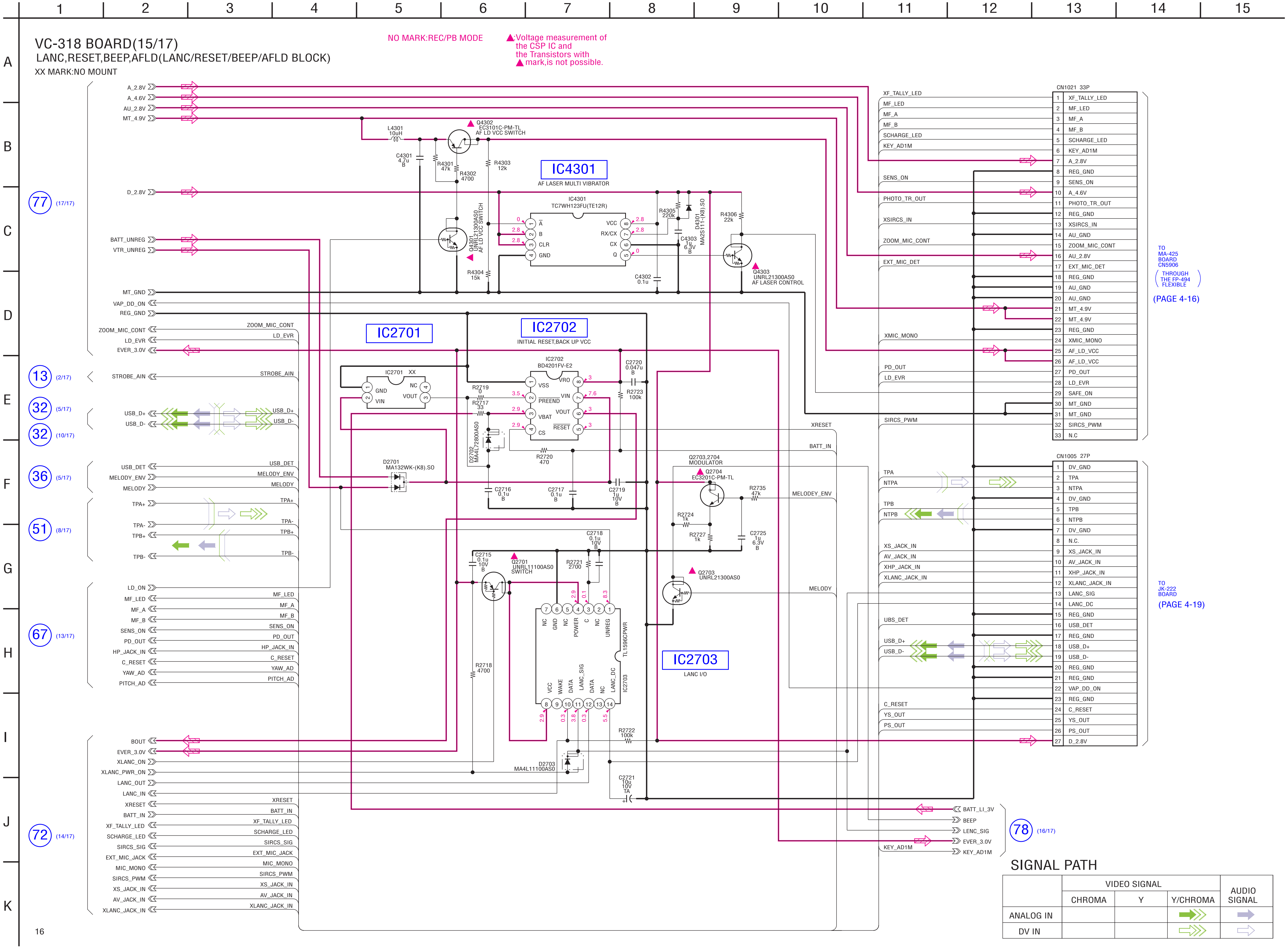
15
A
B
C
D
E
F
G
H
I
J
K
L
IC3101
HI CONTROL
IC3101
MB89097LGA-G-142-ER
CSP(CHIP SIZE PACKAGE)IC
Q3101
HN1L02FU(TE85R)
BATTERY CHARGE DETECTOR
X3101
10MHz
X3102
32.768kHz
D3101
MA2S111-(K8).SO
EVER_3.0V
XRESET
VOUT
FB3101
0uH
R3107
1k
R3108
1k
R3109
47k
C3105
0.01u
B
C3103
33u
4V
C3104
0.1u
B
C3102
10p CH
C3101
10p CH
R3106
10M
R3105
0
R3128
0
R3103
100k
R3102
100k
R3127
XX
C3120
XX
R3110
100k
R3111
1M
C3121
2200p B
C3122
2200p B
R3101
1M
SIRCS_SIG
BATT_IN
XLANC_PWR_ON
XLANC_ON
LANC_OUT
LANC_IN
SIRCS_PWM
SCHARGE_LED
XF_TALLY_LED
XLANC_JACK_IN
AV_JACK_IN
XS_JACK_IN
XMIC_MONO
EXT_MIC_JACK
TP_OUT_X
TP_OUT_Y
HI_XRESET
TP_SEL1
TP_SEL2
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
DIAL_A
DIAL_B
LCD_COM/XDATA
XCS_LCD_DRIVER
VTR_DD_ON
D_2.8V
REG_GND
BATT_UNREG
VTR_UNREG
72
(15/17)
73
(16/17)
74
(17/17)
14
13
KEY_AD2
VCC
AVREF
GND
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
SHEO_CONT_AD
XLANC_JACK_IN
TP_X
TP_Y
RST_X
BATT/EXT
MIC_MONO
MIC_IN
V_JACK_IN
XS_JACK_IN
DIAL_A
DIAL_B
LANC_OUT
LANC_IN
INIT_CHARGE
FAST_CHARGE
CHARGE_INH
VTR_DD_ON
TPSEL1
XHI_DS_HELP
SYS_V
BATT_IN
TEST
X_TAL
X_TAL
TEST
LEGACY_XCS0
LEGASY_SCK0
LEGASY_RXD0
LEGACY_TXD0
XCS_LCD_DRIVER
HI_EVER_SCK
BATT_SIG
BATT/XEXT
INIT_CHARGE_ON
SHOE_ON
SHOE_CONT_AD
HOTSHOE_ID1
HOTSHOE_ID2
IC3101_SCK0
IC3101_RXD0
IC3101_TXD0
DS_RESET
IC2905_MAD
IC3101_CS
OSD_V
XSYS_RST
SYS_V
FAST_CHARGE
XCS_DD
HI_EVER_SCK
HI_EVER_SO
EVF_TALLY
XVTR_MODE_SW
SCAM_MODE_SW
XS/S_SW
XPHOTO_FREEZE
XPHOTO_STBY_SW
XETECT_SW
XCC_SOWN
75
(17/17)
33
(5/17)
28
(4/17)
28
(6/17)
28
(16/17)
7
(2/17)
7
(3/17)
7
(13/17)
76
(16/17)
65
(12/17)
RB3101
10kx4
RB3102
10kx4
RB3103
1kx4
RB3104
1kx4
RB3106
1kx4
RB3107
1kx4
RB3110
1kx4
RB3111
1kx4
R3124
100k
R3123
1M
C3118
6800p
B
R3112
1k
C3119
XX
R3104
47k
R3114
100k
R3115
100k
R3117
100k
R3113 1M ±0.5%
R3120 100k ±0.5%
C3106
0.01u
B
R3116
470k
±0.5%
C3107
0.01u
B
R3121
47k
±0.5%
C3113
0.01u
B
C3115
0.01u
B
C3108 XX
C3109 XX
C3110 XX
C3111 XX
C3112 XX
C3114 XX
C3116 XX
C3117 XX
KEY_AD0_IC
KEY_AD1_IC
KEY_AD6_IC
SHOE_CONT_AD_IC
KEY_AD2_IC
KEY_AD3_IC
KEY_AD4_IC
KEY_AD5_IC
XSYS_RST
DIAL_A_IC
DIAL_B_IC
AV_JACK_IC_IC
XS_JACK_IN_IC
XMIC_MONO_IC
EXT_MIC_JACK_IC
HOTSHOE_ID1_IC
HOTSHOE_ID2_IC
BATT_UNREG_IC
VTR_UNREG_IC
HOT_SHOE_ID1
HOT_SHOE_ID2
BATT/XEXT_IC
XVTR_MODE_SW_IC
XCAM_MODE_SW_IC
XS/S_SW_IC
XEJECT_SW_IC
XCC_DOWN_IC
XPHOTO_FREEZE_IC
XPHOTO_STBY_SW_IC
XLANC_JACK_IN_IC
16

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.



VC-318 BOARD(15/17)
LANC,RESET,BEEP,AFLD(LANC/RESET/BEEP/AFLD BLOCK)
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.

1
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15
A
B
C
D
E
F
G
H
I
J
K
16
77 (17/17)
A_2.8V
A_4.6V
AU_2.8V
MT_4.9V
D_2.8V
BATT_UNREG
VTR_UNREG
MT_GND
VAP_DD_ON
REG_GND
ZOOM_MIC_CONT
LD_EVR
EVER_3.0V
13 (2/17)
STROBE_AIN
32 (5/17)
32 (10/17)
USB_D+
USB_D-
36 (5/17)
USB_DET
MELODY_ENV
MELODY
51 (8/17)
TPA+
TPA-
TPB+
TPB-
67 (13/17)
LD_ON
MF_LED
MF_A
MF_B
SENS_ON
PD_OUT
HP_JACK_IN
C_RESET
YAW_AD
PITCH_AD
72 (14/17)
BOUT
EVER_3.0V
XLANC_ON
XLANC_PWR_ON
LANC_OUT
LANC_IN
XRESET
BATT_IN
XF_TALLY_LED
SCHARGE_LED
SIRCS_SIG
EXT_MIC_JACK
MIC_MONO
SIRCS_PWM
XS_JACK_IN
AV_JACK_IN
XLANC_JACK_IN
L4301 10uH
C4301 4.7u B
▲ Q4302 EC3101C-PM-TL AF LD VCC SWITCH
R4301 47k
R4302 4700
R4303 12k
IC4301
AF LASER MULTI VIBRATOR
IC4301 TC7WH123FU(TE12R)
A
B
CLR
GND
VCC
RX/CX
CX
Q
0
2.8
2.8
2.8
2.8
0
Q4301 UNRL21300AS0 AF LD VCC SWITCH
R4304 15k
R4305 220k
C4303 1u 6.3V B
D4301 MA2S111-(K8).SO
R4306 22k
C4302 0.1u
▲ Q4303 UNRL21300AS0 AF LASER CONTROL
IC2701
IC2702
INITIAL RESET,BACK UP VCC
IC2701 XX
GND
VIN
NC
VOUT
IC2702 BD4201FV-E2
VSS
PREEND
VBAT
CS
VRO
VIN
VOUT
RESET
3.5
2.9
2.9
3
7.6
3
3
R2719 0
R2717 33
D2702 MA4L72800AS0
R2720 470
C2720 0.047u B
R2723 100k
D2701 MA132WK-(K8).SO
C2716 0.1u B
C2717 0.1u B
C2719 1u 10V B
XRESET
BATT_IN
Q2703,2704 MODULATOR
▲ Q2704 EC3201C-PM-TL
R2735 47k
MELODEY_ENV
R2724 1k
R2727 1k
C2725 1u 6.3V B
C2718 0.1u 10V B
C2715 0.1u 10V B
▲ Q2701 UNRL11100AS0 SWITCH
R2721 2700
▲ Q2703 UNRL21300AS0
MELODY
NC
GND
NC
POWER
C
NC
UNREG
TL1596CPWR
VCC
WAKE
DATA
LANC_SIG
DATA
NC
LANC_DC
IC2703
2.9
0.1
8.3
2.9
0.3
3.8
0.3
5.5
IC2703
LANC I/O
R2718 4700
R2722 100k
D2703 MA4L11100AS0
C2721 10u 10V TA
XF_TALLY_LED
MF_LED
MF_A
MF_B
SCHARGE_LED
KEY_AD1M
SENS_ON
PHOTO_TR_OUT
XSIRCS_IN
ZOOM_MIC_CONT
EXT_MIC_DET
XMIC_MONO
PD_OUT
LD_EVR
SIRCS_PWM
CN1021 33P
1 XF_TALLY_LED
2 MF_LED
3 MF_A
4 MF_B
5 SCHARGE_LED
6 KEY_AD1M
7 A_2.8V
8 REG_GND
9 SENS_ON
10 A_4.6V
11 PHOTO_TR_OUT
12 REG_GND
13 XSIRCS_IN
14 AU_GND
15 ZOOM_MIC_CONT
16 AU_2.8V
17 EXT_MIC_DET
18 REG_GND
19 AU_GND
20 AU_GND
21 MT_4.9V
22 MT_4.9V
23 REG_GND
24 XMIC_MONO
25 AF_LD_VCC
26 AF_LD_VCC
27 PD_OUT
28 LD_EVR
29 SAFE_ON
30 MT_GND
31 MT_GND
32 SIRCS_PWM
33 N.C
TO MA-425 BOARD CN5906
(THROUGH THE FP-494 FLEXIBLE)
(PAGE 4-16)
TPA
NTPA
TPB
NTPB
XS_JACK_IN
AV_JACK_IN
XHP_JACK_IN
XLANC_JACK_IN
UBS_DET
USB_D+
USB_D-
C_RESET
YS_OUT
PS_OUT
CN1005 27P
1 DV_GND
2 TPA
3 NTPA
4 DV_GND
5 TPB
6 NTPB
7 DV_GND
8 N.C.
9 XS_JACK_IN
10 AV_JACK_IN
11 XHP_JACK_IN
12 XLANC_JACK_IN
13 LANC_SIG
14 LANC_DC
15 REG_GND
16 USB_DET
17 REG_GND
18 USB_D+
19 USB_D-
20 REG_GND
21 REG_GND
22 VAP_DD_ON
23 REG_GND
24 C_RESET
25 YS_OUT
26 PS_OUT
27 D_2.8V
TO JK-222 BOARD
(PAGE 4-19)
BATT_LI_3V
BEEP
LENC_SIG
EVER_3.0V
KEY_AD1M
78 (16/17)

SIGNAL PATH

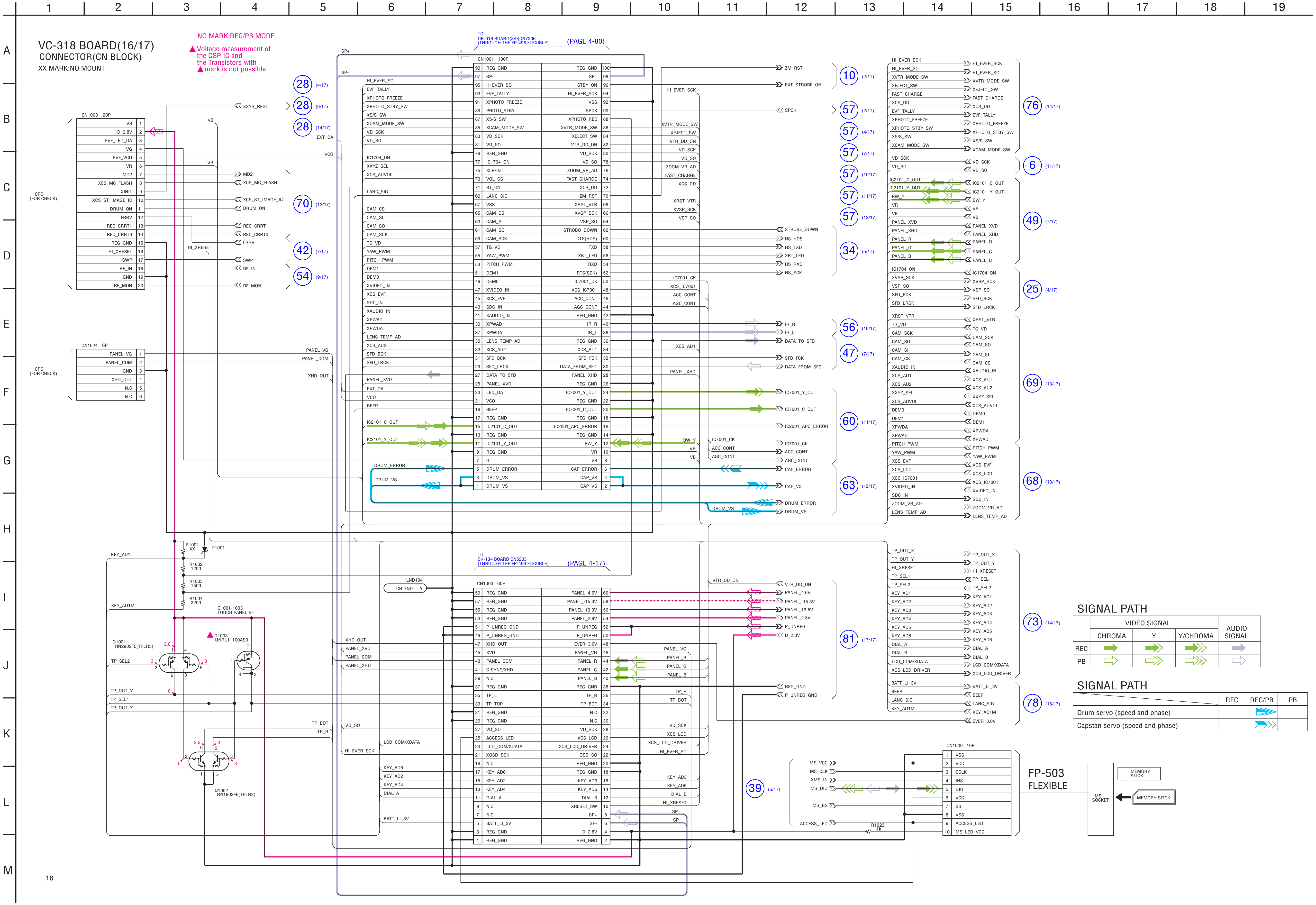
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
ANALOG IN			➡»	➡
DV IN			⇨»	⇨

COVER

4-2. SCHEMATIC DIAGRAMS | VC-318 BOARD SIDE A | VC-318 BOARD SIDE B

For Schematic Diagram

- Refer to page 4-119 for printed wiring board.


VC-318 BOARD(16/17)
CONNECTOR(CN BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
▲Voltage measurement of the CSP IC and the Transistors with ▲mark,is not possible.
TO DB-016 BOARD(8/9)CN7206 (THROUGH THE FP-498 FLEXIBLE)
(PAGE 4-80)
CN1001 100P
TO CK-134 BOARD CN5203 (THROUGH THE FP-496 FLEXIBLE)
(PAGE 4-17)
CN1003 60P
CN1008 20P
CN1024 6P
CN1009 10P
CPC (FOR CHECK)
LND194 CH.GND
Q1001-1003 TOUCH PANEL I/F
Q1001 RN2902FE(TPLR3)
Q1002 RN1902FE(TPLR3)
Q1003 UNRL11100AS0
D1001
R1001 XX
R1002 1200
R1003 1500
R1004 2200
R1023 1k
FP-503 FLEXIBLE
MEMORY STICK
MS SOCKET
MEMORY SITCK
16

SIGNAL PATH

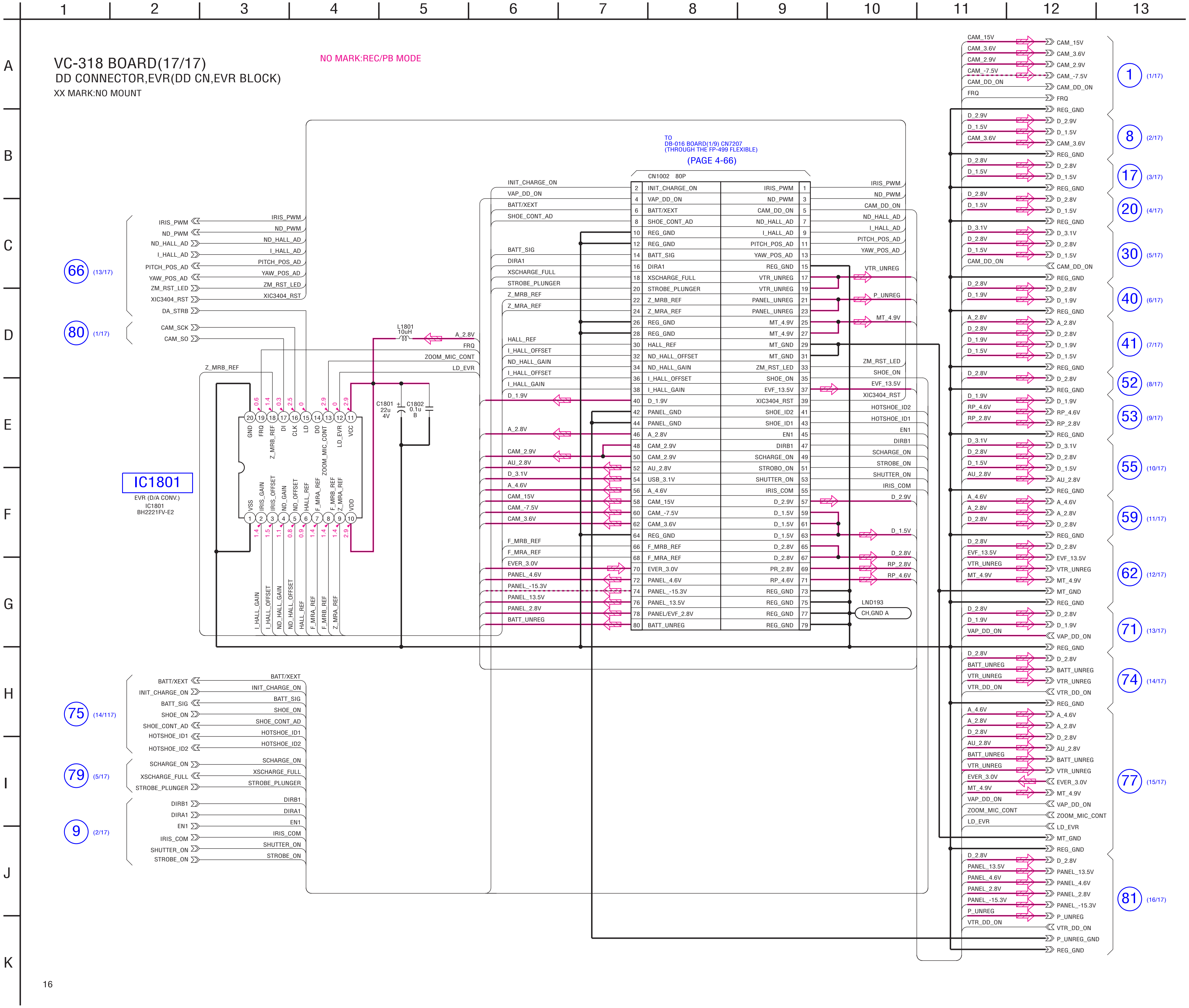
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡➡	➡
PB	⇨	⇨	⇨⇨	⇨

SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		➡	
Capstan servo (speed and phase)		⇨⇨	

For Schematic Diagram

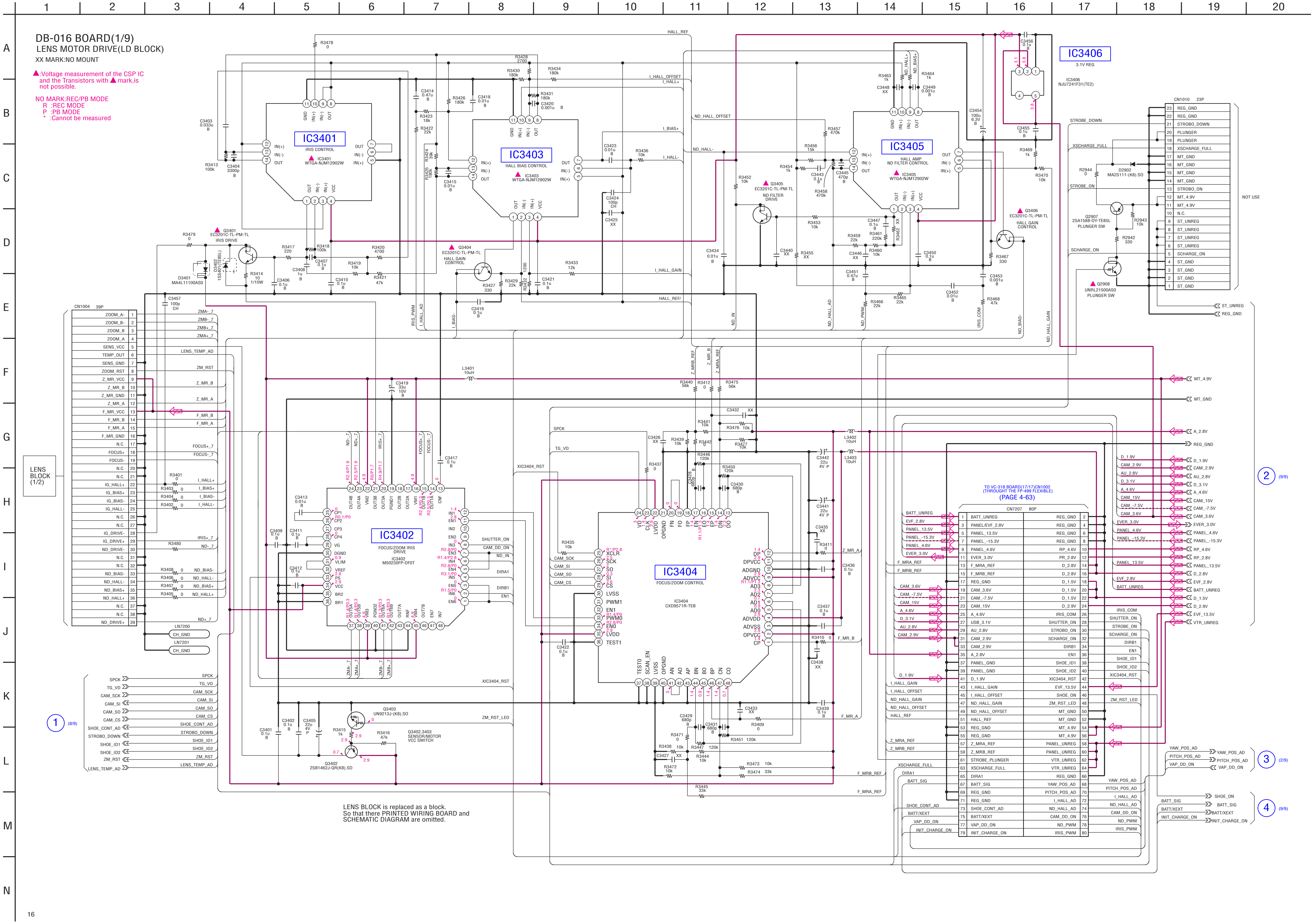
- Refer to page 4-119 for printed wiring board.


VC-318 BOARD(17/17)
DD CONNECTOR,EVR(DD CN,EVR BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
TO
DB-016 BOARD(1/9) CN7207
(THROUGH THE FP-499 FLEXIBLE)
(PAGE 4-66)
CN1002 80P
IC1801
EVR (D/A CONV.)
IC1801
BH2221FV-E2
L1801
10uH
C1801
22u
4V
C1802
0.1u
B
GND
FRQ
Z_MRB_REF
DI
CLK
LD
DO
ZOOM_MIC_CONT
LD_EVR
VCC
VSS
IRIS_GAIN
IRIS_OFFSET
ND_GAIN
ND_OFFSET
HALL_REF
F_MRA_REF
F_MRB_REF
Z_MRA_REF
VDD
I_HALL_GAIN
I_HALL_OFFSET
ND_HALL_GAIN
ND_HALL_OFFSET
INIT_CHARGE_ON
VAP_DD_ON
BATT/XEXT
SHOE_CONT_AD
REG_GND
BATT_SIG
DIRA1
XSCHARGE_FULL
STROBE_PLUNGER
Z_MRB_REF
Z_MRA_REF
HALL_REF
ND_HALL_OFFSET
ND_HALL_GAIN
I_HALL_OFFSET
I_HALL_GAIN
D_1.9V
PANEL_GND
A_2.8V
CAM_2.9V
AU_2.8V
USB_3.1V
A_4.6V
CAM_15V
CAM_-7.5V
CAM_3.6V
F_MRB_REF
F_MRA_REF
EVER_3.0V
PANEL_4.6V
PANEL_-15.3V
PANEL_13.5V
PANEL/EVF_2.8V
BATT_UNREG
IRIS_PWM
ND_PWM
CAM_DD_ON
ND_HALL_AD
I_HALL_AD
PITCH_POS_AD
YAW_POS_AD
VTR_UNREG
PANEL_UNREG
MT_4.9V
MT_GND
ZM_RST_LED
SHOE_ON
EVF_13.5V
XIC3404_RST
SHOE_ID2
SHOE_ID1
EN1
DIRB1
SCHARGE_ON
STROBO_ON
SHUTTER_ON
IRIS_COM
D_2.9V
D_1.5V
D_2.8V
PR_2.8V
RP_4.6V
RP_2.8V
P_UNREG
HOTSHOE_ID2
HOTSHOE_ID1
STROBE_ON
LND193
CH,GND A
DA_STRB
CAM_SCK
CAM_SO
ZOOM_MIC_CONT
LD_EVR
FRQ
66 (13/17)
80 (1/17)
75 (14/117)
79 (5/17)
9 (2/17)
1 (1/17)
8 (2/17)
17 (3/17)
20 (4/17)
30 (5/17)
40 (6/17)
41 (7/17)
52 (8/17)
53 (9/17)
55 (10/17)
59 (11/17)
62 (12/17)
71 (13/17)
74 (14/17)
77 (15/17)
81 (16/17)
CAM_2.9V
CAM_-7.5V
REG_GND
D_3.1V
D_1.9V
A_2.8V
VTR_DD_ON
EVER_3.0V
PANEL_2.8V
P_UNREG_GND
16

COVER

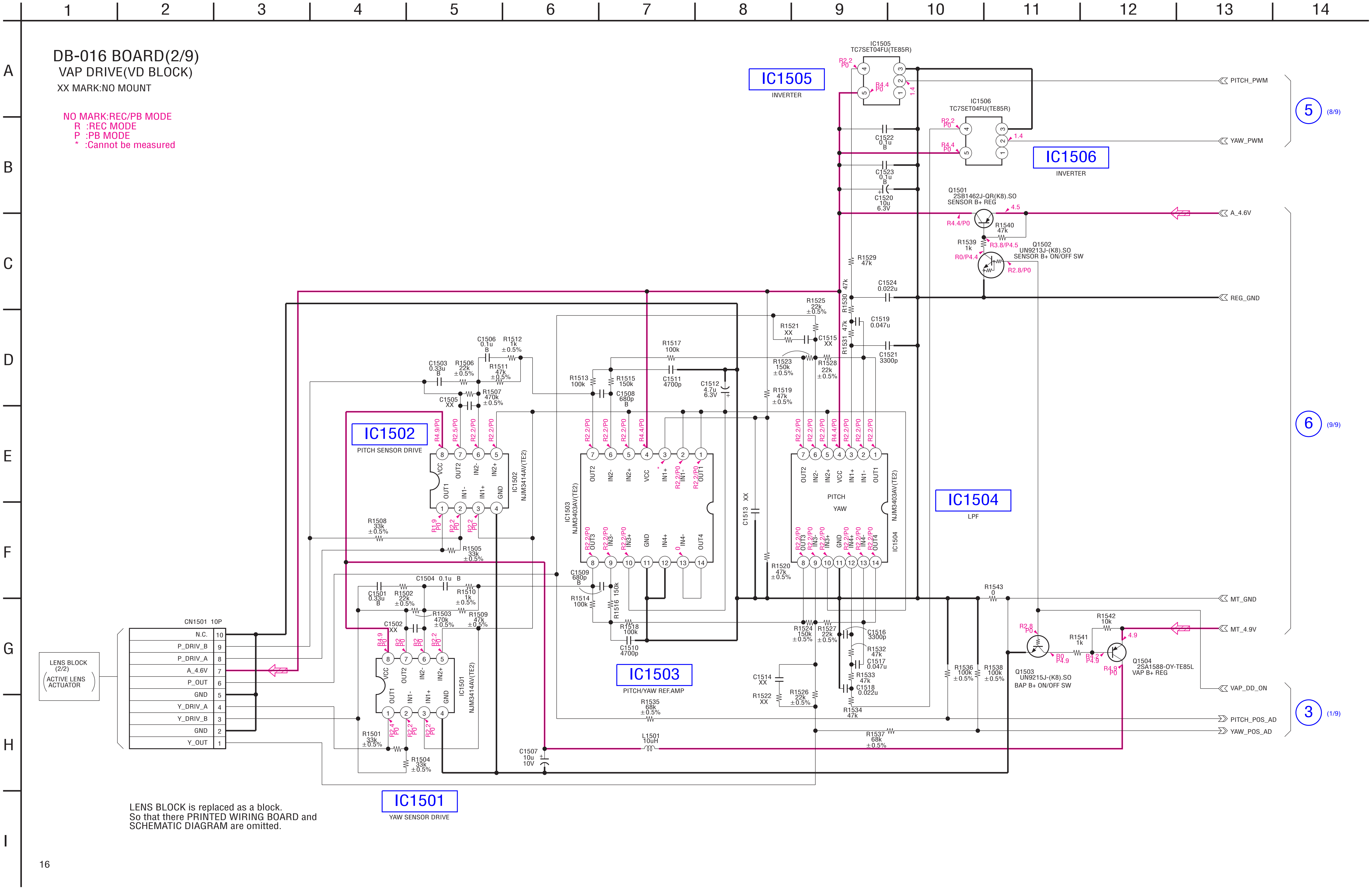
For Schematic Diagram

- Refer to page 4-123 for printed wiring board.


DB-016 BOARD(1/9)
LENS MOTOR DRIVE(LD BLOCK)
XX MARK:NO MOUNT
:Voltage measurement of the CSP IC and the Transistors with mark,is not possible.
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
* :Cannot be measured
IC3401 IRIS CONTROL
IC3401 WTGA-NJM12902W
IC3403 HALL BIAS CONTROL
IC3403 WTGA-NJM12902W
IC3405 HALL AMP ND FILTER CONTROL
IC3405 WTGA-NJM12902W
IC3406 3.1V REG
IC3406 NJU7241F31(TE2)
Q3401 EC3201C-TL-PM-TL IRIS DRIVE
Q3404 EC3201C-TL-PM-TL HALL GAIN CONTROL
Q3405 EC3201C-TL-PM-TL ND FILTER DRIVE
Q3406 EC3201C-TL-PM-TL HALL GAIN CONTROL
Q2907 2SA1588-OY-TE85L PLUNGER SW
Q2908 UNRL21500A50 PLUNGER SW
D2902 MA2S111-(K8).SO
D3401 MA4L11100A50
IC3402 FOCUS/ZOOM IRIS DRIVE
IC3402 M50230FP-DF0T
IC3404 FOCUS/ZOOM CONTROL
IC3404 CXD9571R-TEB
Q3403 UN9213J-(K8).SO
Q3402 2SB1462J-QR(K8).SO
Q3402,3403 SENSOR/MOTOR VCC SWITCH
CN1004 39P
LENS BLOCK (1/2)
CN1010 23P
NOT USE
CN7207 80P
TO VC-318 BOARD(17/17)CN1002 (THROUGHT THE FP-499 FLEXIBLE)
(PAGE 4-63)
LENS BLOCK is replaced as a block.
So that there PRINTED WIRING BOARD and SCHEMATIC DIAGRAM are omitted.
1 (8/9)
2 (9/9)
3 (2/9)
4 (9/9)
16

For Schematic Diagram

- Refer to page 4-123 for printed wiring board.



DB-016 BOARD(2/9)

VAP DRIVE(VD BLOCK)

XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
* :Cannot be measured

LENS BLOCK is replaced as a block.
So that there PRINTED WIRING BOARD and
SCHEMATIC DIAGRAM are omitted.

1
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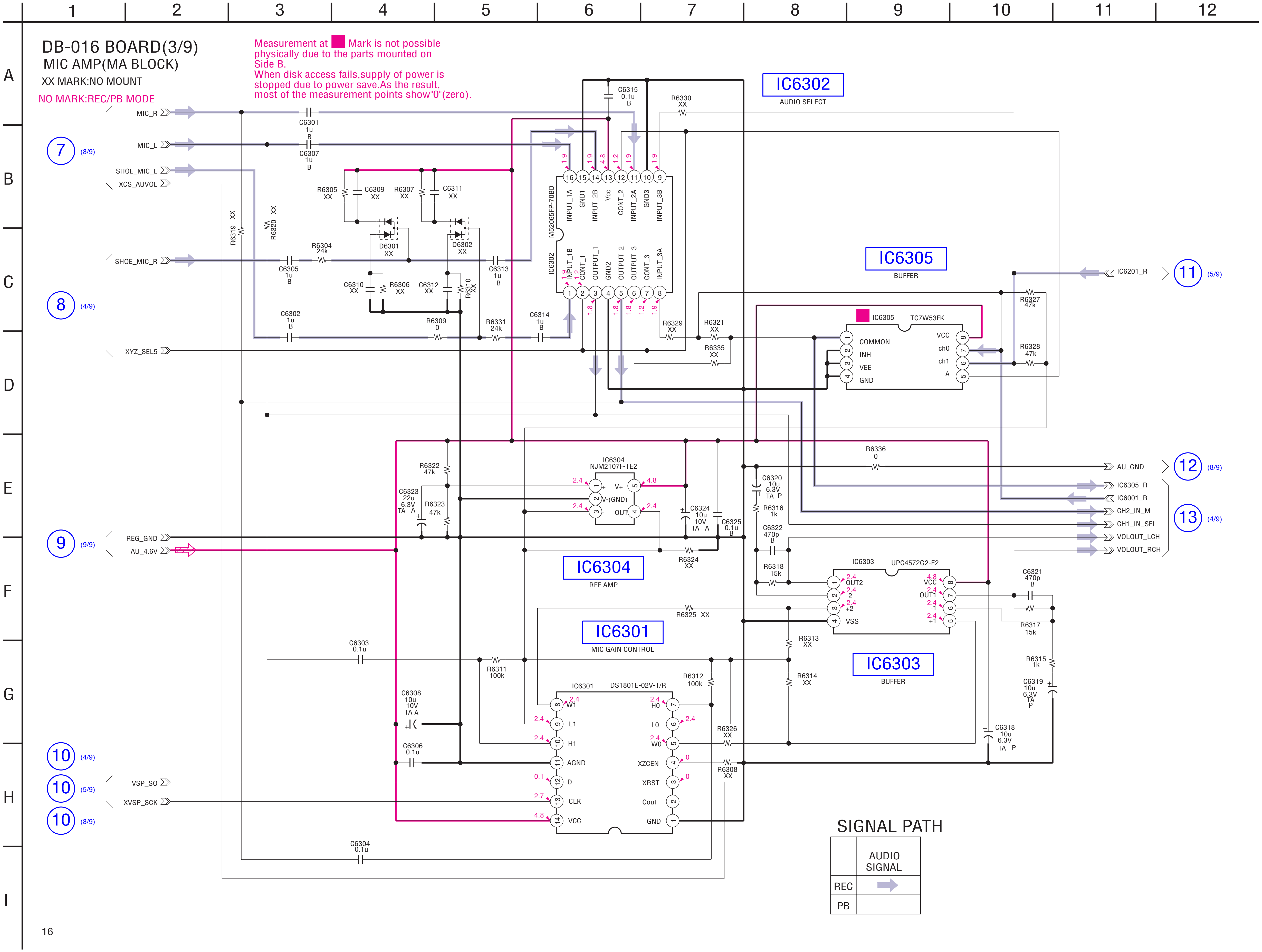
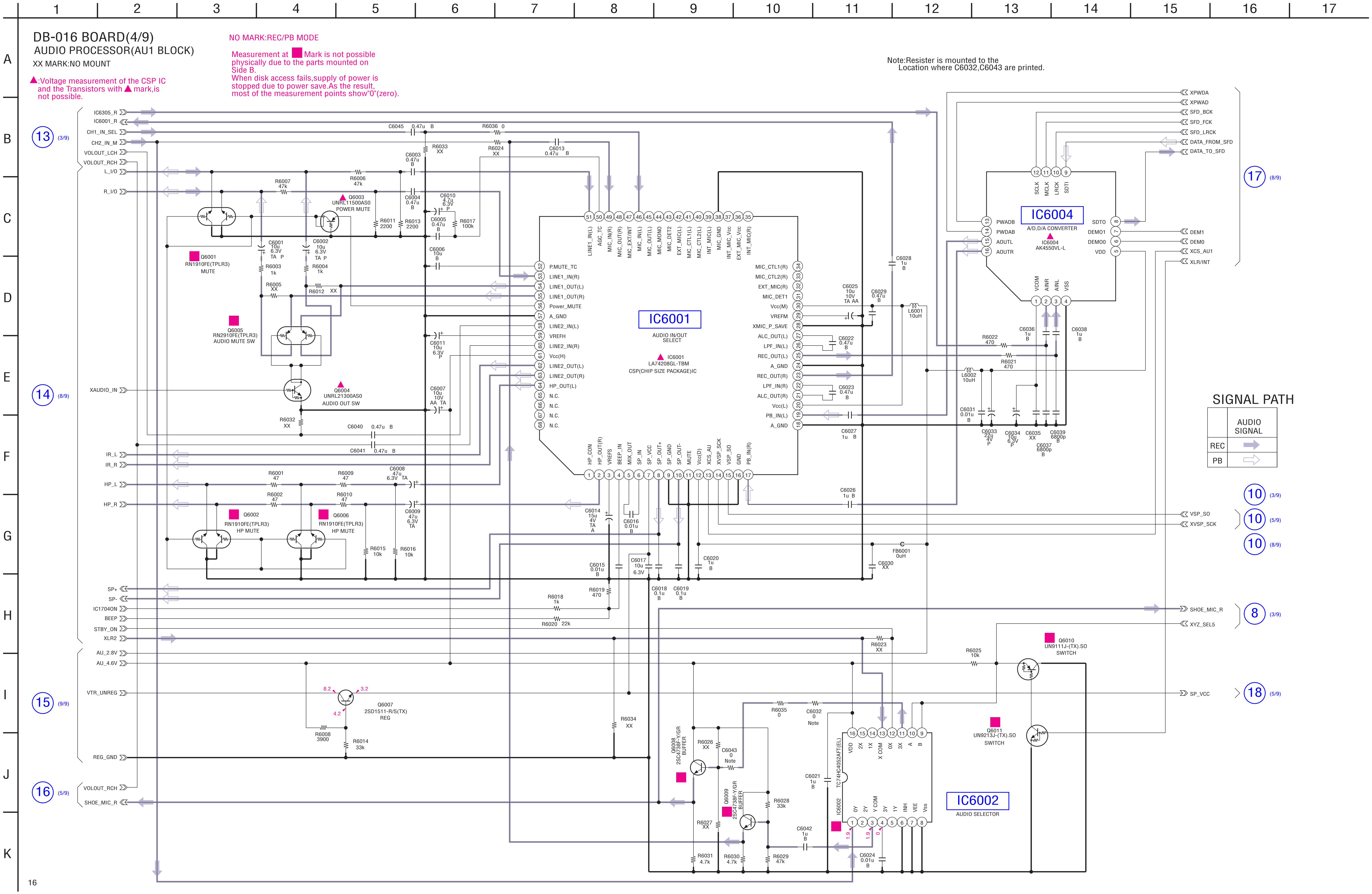
11
12
13
14
A
B
C
D
E
F
G
H
I
IC1505
TC7SET04FU(TE85R)
IC1505
INVERTER
IC1506
TC7SET04FU(TE85R)
IC1506
INVERTER
PITCH_PWM
YAW_PWM
5
(8/9)
Q1501
2SB1462J-QR(K8).SO
SENSOR B+ REG
Q1502
UN9213J-(K8).SO
SENSOR B+ ON/OFF SW
A_4.6V
REG_GND
6
(9/9)
IC1502
PITCH SENSOR DRIVE
IC1502
NJM3414AV(TE2)
IC1503
NJM3403AV(TE2)
IC1504
LPF
IC1504
NJM3403AV(TE2)
PITCH
YAW
IC1503
PITCH/YAW REF.AMP
IC1501
YAW SENSOR DRIVE
IC1501
NJM3414AV(TE2)
CN1501 10P
N.C.
P_DRIV_B
P_DRIV_A
A_4.6V
P_OUT
GND
Y_DRIV_A
Y_DRIV_B
GND
Y_OUT
LENS BLOCK
(2/2)
ACTIVE LENS
ACTUATOR
MT_GND
MT_4.9V
Q1503
UN9215J-(K8).SO
BAP B+ ON/OFF SW
Q1504
2SA1588-OY-TE85L
VAP B+ REG
VAP_DD_ON
PITCH_POS_AD
YAW_POS_AD
3
(1/9)
L1501
10uH
C1507
10u
10V
16

For Schematic Diagram
- Refer to page 4-123 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H I
DB-016 BOARD(3/9)
MIC AMP(MA BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
Measurement at ■ Mark is not possible physically due to the parts mounted on Side B.
When disk access fails,supply of power is stopped due to power save.As the result, most of the measurement points show"0"(zero).
MIC_R
MIC_L
SHOE_MIC_L
XCS_AUVOL
SHOE_MIC_R
XYZ_SEL5
REG_GND
AU_4.6V
VSP_SO
XVSP_SCK
7 (8/9)
8 (4/9)
9 (9/9)
10 (4/9)
10 (5/9)
10 (8/9)
11 (5/9)
12 (8/9)
13 (4/9)
IC6201_R
AU_GND
IC6305_R
IC6001_R
CH2_IN_M
CH1_IN_SEL
VOLOUT_LCH
VOLOUT_RCH
IC6302
AUDIO SELECT
IC6302 M52065FP-708D
INPUT_1A GND1 INPUT_2B Vcc CONT_2 INPUT_2A GND3 INPUT_3B
INPUT_1B CONT_1 OUTPUT_1 GND2 OUTPUT_2 OUTPUT_3 CONT_3 INPUT_3A
IC6305
BUFFER
IC6305 TC7W53FK
COMMON INH VEE GND VCC ch0 ch1 A
IC6304
REF AMP
IC6304 NJM2107F-TE2
V+ V-(GND) OUT
IC6301
MIC GAIN CONTROL
IC6301 DS1801E-02V-T/R
W1 L1 H1 AGND D CLK VCC H0 LO W0 XCZEN XRST Cout GND
IC6303
BUFFER
IC6303 UPC4572G2-E2
OUT2 -2 +2 VSS VCC OUT1 -1 +1
C6301 1u B
C6307 1u B
C6305 1u B
C6302 1u B
C6303 0.1u
C6304 0.1u
C6306 0.1u
C6308 10u 10V TA A
C6309 XX
C6310 XX
C6311 XX
C6312 XX
C6313 1u B
C6314 1u B
C6315 0.1u B
C6318 10u 6.3V TA P
C6319 10u 6.3V TA P
C6320 10u 6.3V TA P
C6321 470p B
C6322 470p B
C6323 22u 6.3V TA A
C6324 10u 10V TA A
C6325 0.1u B
D6301 XX
D6302 XX
R6304 24k
R6305 XX
R6306 XX
R6307 XX
R6308 XX
R6309 0
R6310 XX
R6311 100k
R6312 100k
R6313 XX
R6314 XX
R6315 1k
R6316 1k
R6317 15k
R6318 15k
R6319 XX
R6320 XX
R6321 XX
R6322 47k
R6323 47k
R6324 XX
R6325 XX
R6326 XX
R6327 47k
R6328 47k
R6329 XX
R6330 XX
R6331 24k
R6335 XX
R6336 0
1.9 1.9 4.8 1.2 1.9 1.9
1.9 1.2 1.8 1.8 1.8 1.2 1.9
2.4 4.8 2.4 2.4
2.4 2.4 2.4 2.4 4.8 2.4 2.4 2.4
2.4 2.4 2.4 2.4 2.4 2.4 0 0 0.1 2.7 4.8
16
SIGNAL PATH
AUDIO SIGNAL
REC
PB

For Schematic Diagram

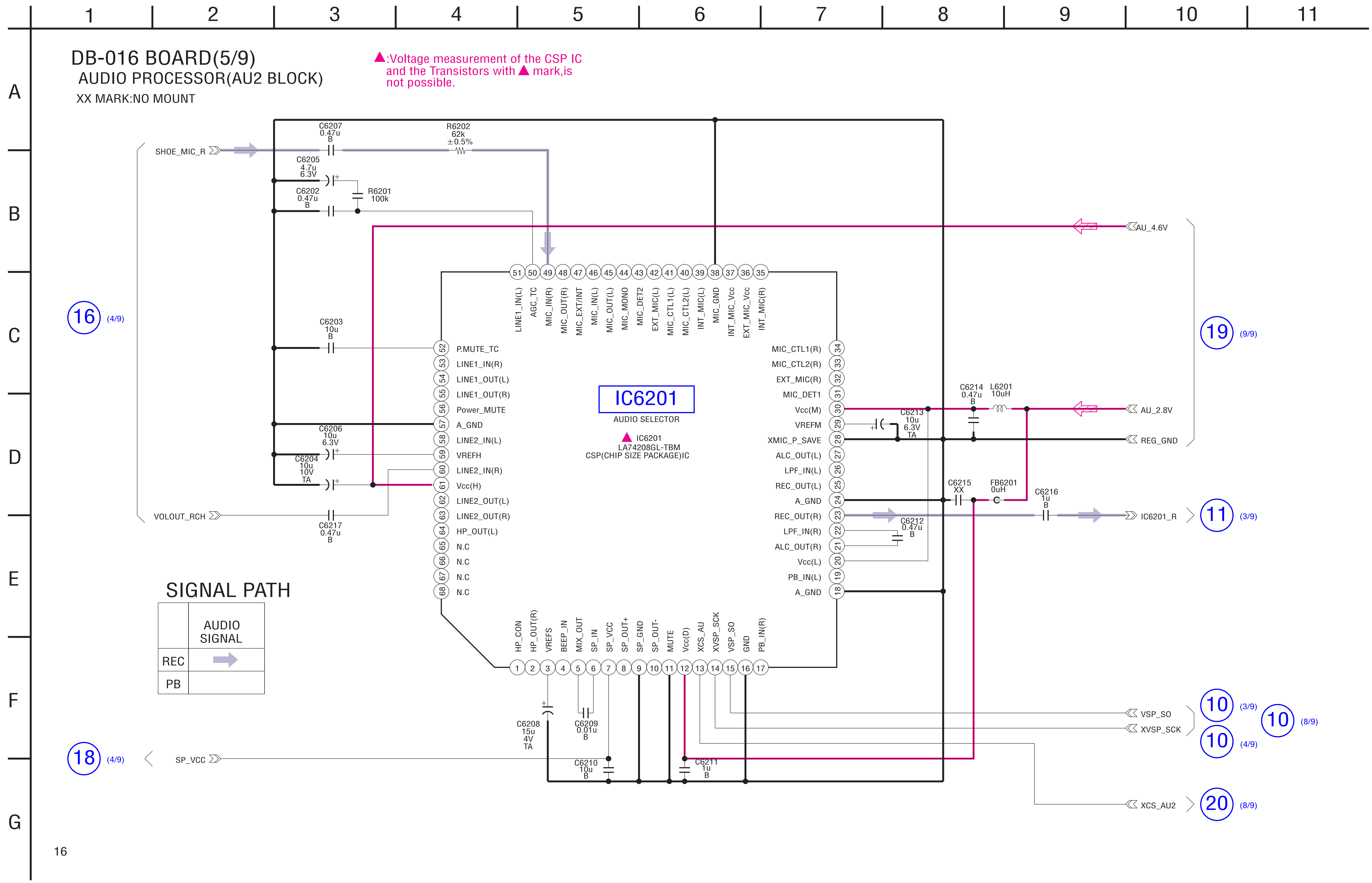
- Refer to page 4-123 for printed wiring board.


DB-016 BOARD(4/9)
AUDIO PROCESSOR(AU1 BLOCK)
XX MARK:NO MOUNT
▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.
NO MARK:REC/PB MODE
Measurement at ■ Mark is not possible physically due to the parts mounted on Side B.
When disk access fails,supply of power is stopped due to power save.As the result, most of the measurement points show"0"(zero).
Note:Resister is mounted to the Location where C6032,C6043 are printed.
IC6001
AUDIO IN/OUT SELECT
IC6001 LA74208GL-TBM CSP(CHIP SIZE PACKAGE)IC
IC6004
A/D,D/A CONVERTER
IC6004 AK4550VL-L
IC6002
AUDIO SELECTOR
IC6002 TC74HC4052AFT(EL)
Q6001 RN1910FE(TPLR3) MUTE
Q6003 UNR L11500AS0 POWER MUTE
Q6005 RN2910FE(TPLR3) AUDIO MUTE SW
Q6004 UNRL21300AS0 AUDIO OUT SW
Q6002 RN1910FE(TPLR3) HP MUTE
Q6006 RN1910FE(TPLR3) HP MUTE
Q6007 2SD1511-R/S(TX) REG
Q6008 2SC4738F-Y/GR BUFFER
Q6009 2SC4738F-Y/GR BUFFER
Q6010 UN9111J-(TX).SO SWITCH
Q6011 UN9213J-(TX).SO SWITCH
IC6305_R
IC6001_R
CH1_IN_SEL
CH2_IN_M
VOLOUT_LCH
VOLOUT_RCH
L_I/O
R_I/O
XAUDIO_IN
IR_L
IR_R
HP_L
HP_R
SP+
SP-
IC17040N
BEEP
STBY_ON
XLR2
AU_2.8V
AU_4.6V
VTR_UNREG
REG_GND
VOLOUT_RCH
SHOE_MIC_R
XPWDA
XPWAD
SFD_BCK
SFD_FCK
SFD_LRCK
DATA_FROM_SFD
DATA_TO_SFD
DEM1
DEM0
XCS_AU1
XLR/INT
VSP_SO
XVSP_SCK
SHOE_MIC_R
XYZ_SEL5
SP_VCC
13 (3/9)
14 (8/9)
15 (9/9)
16 (5/9)
17 (8/9)
10 (3/9)
10 (5/9)
10 (8/9)
8 (3/9)
18 (5/9)

SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	⇨

For Schematic Diagram
- Refer to page 4-123 for printed wiring board.



DB-016 BOARD(5/9)

AUDIO PROCESSOR(AU2 BLOCK)

XX MARK:NO MOUNT

▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.

1
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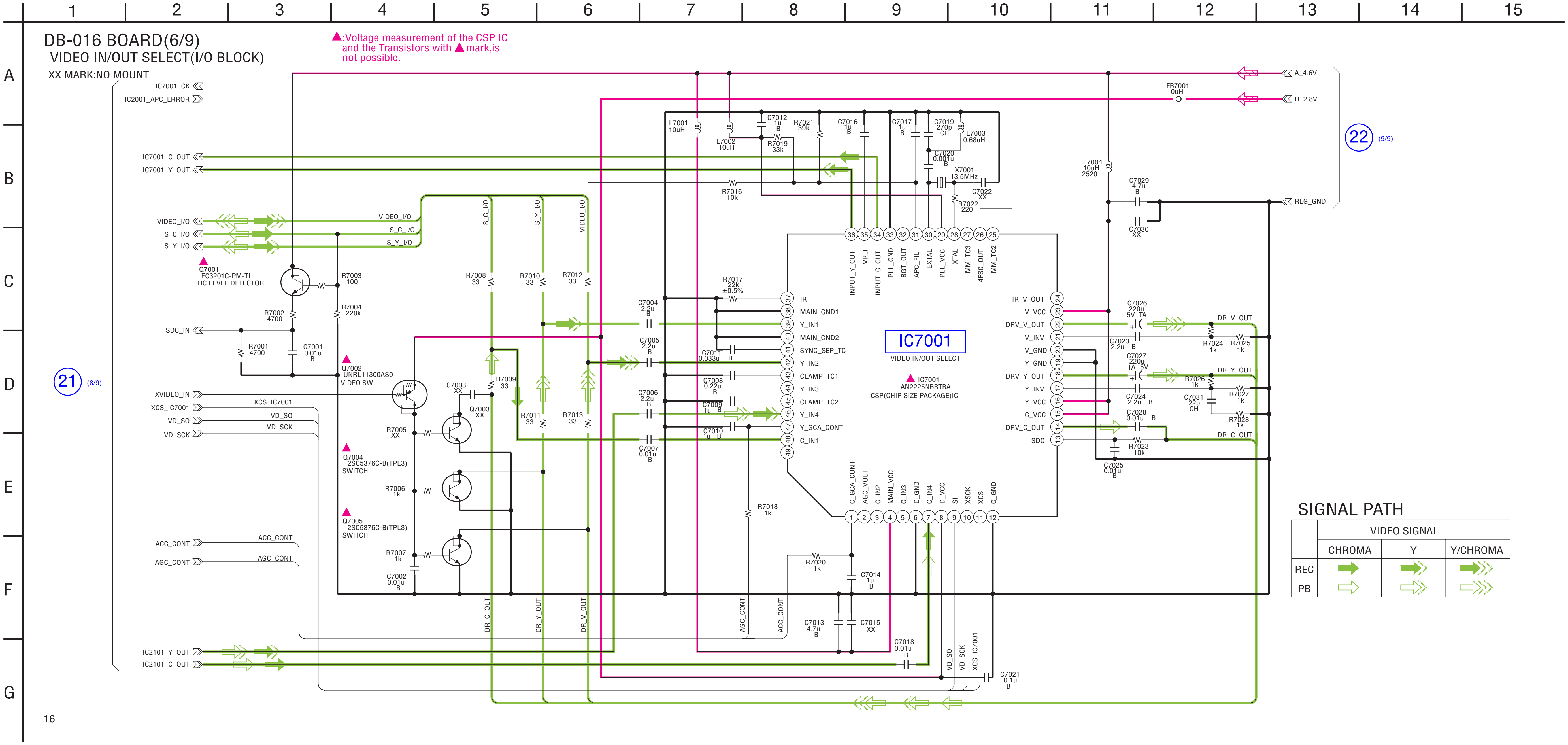
9
10
11
A
B
C
D
E
F
G
SHOE_MIC_R
C6207 0.47u B
R6202 62k ±0.5%
C6205 4.7u 6.3V
C6202 0.47u B
R6201 100k
AU_4.6V
16 (4/9)
19 (9/9)
C6203 10u B
C6206 10u 6.3V
C6204 10u 10V TA
C6217 0.47u B
VOLOUT_RCH
51 LINE1_IN(L)
50 AGC_TC
49 MIC_IN(R)
48 MIC_OUT(R)
47 MIC_EXT/INT
46 MIC_IN(L)
45 MIC_OUT(L)
44 MIC_MONO
43 MIC_DET2
42 EXT_MIC(L)
41 MIC_CTL1(L)
40 MIC_CTL2(L)
39 INT_MIC(L)
38 MIC_GND
37 INT_MIC_Vcc
36 EXT_MIC_Vcc
35 INT_MIC(R)
52 P.MUTE_TC
53 LINE1_IN(R)
54 LINE1_OUT(L)
55 LINE1_OUT(R)
56 Power_MUTE
57 A_GND
58 LINE2_IN(L)
59 VREFH
60 LINE2_IN(R)
61 Vcc(H)
62 LINE2_OUT(L)
63 LINE2_OUT(R)
64 HP_OUT(L)
65 N.C
66 N.C
67 N.C
68 N.C
34 MIC_CTL1(R)
33 MIC_CTL2(R)
32 EXT_MIC(R)
31 MIC_DET1
30 Vcc(M)
29 VREFM
28 XMIC_P_SAVE
27 ALC_OUT(L)
26 LPF_IN(L)
25 REC_OUT(L)
24 A_GND
23 REC_OUT(R)
22 LPF_IN(R)
21 ALC_OUT(R)
20 Vcc(L)
19 PB_IN(L)
18 A_GND
IC6201
AUDIO SELECTOR
▲ IC6201
LA74208GL-TBM
CSP(CHIP SIZE PACKAGE)IC
1 HP_CON
2 HP_OUT(R)
3 VREFS
4 BEEP_IN
5 MIX_OUT
6 SP_IN
7 SP_VCC
8 SP_OUT+
9 SP_GND
10 SP_OUT-
11 MUTE
12 Vcc(D)
13 XCS_AU
14 XVSP_SCK
15 VSP_SO
16 GND
17 PB_IN(R)
C6214 0.47u B
L6201 10uH
C6213 10u 6.3V TA
AU_2.8V
REG_GND
C6215 XX
FB6201 0uH
C6216 1u B
C6212 0.47u B
IC6201_R
11 (3/9)
SIGNAL PATH
AUDIO SIGNAL
REC
PB
C6208 15u 4V TA
C6209 0.01u B
C6210 10u B
C6211 1u B
VSP_SO
XVSP_SCK
10 (3/9)
10 (8/9)
10 (4/9)
18 (4/9)
SP_VCC
XCS_AU2
20 (8/9)
16

For Schematic Diagram

- Refer to page 4-123 for printed wiring board.


1
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3
4
5
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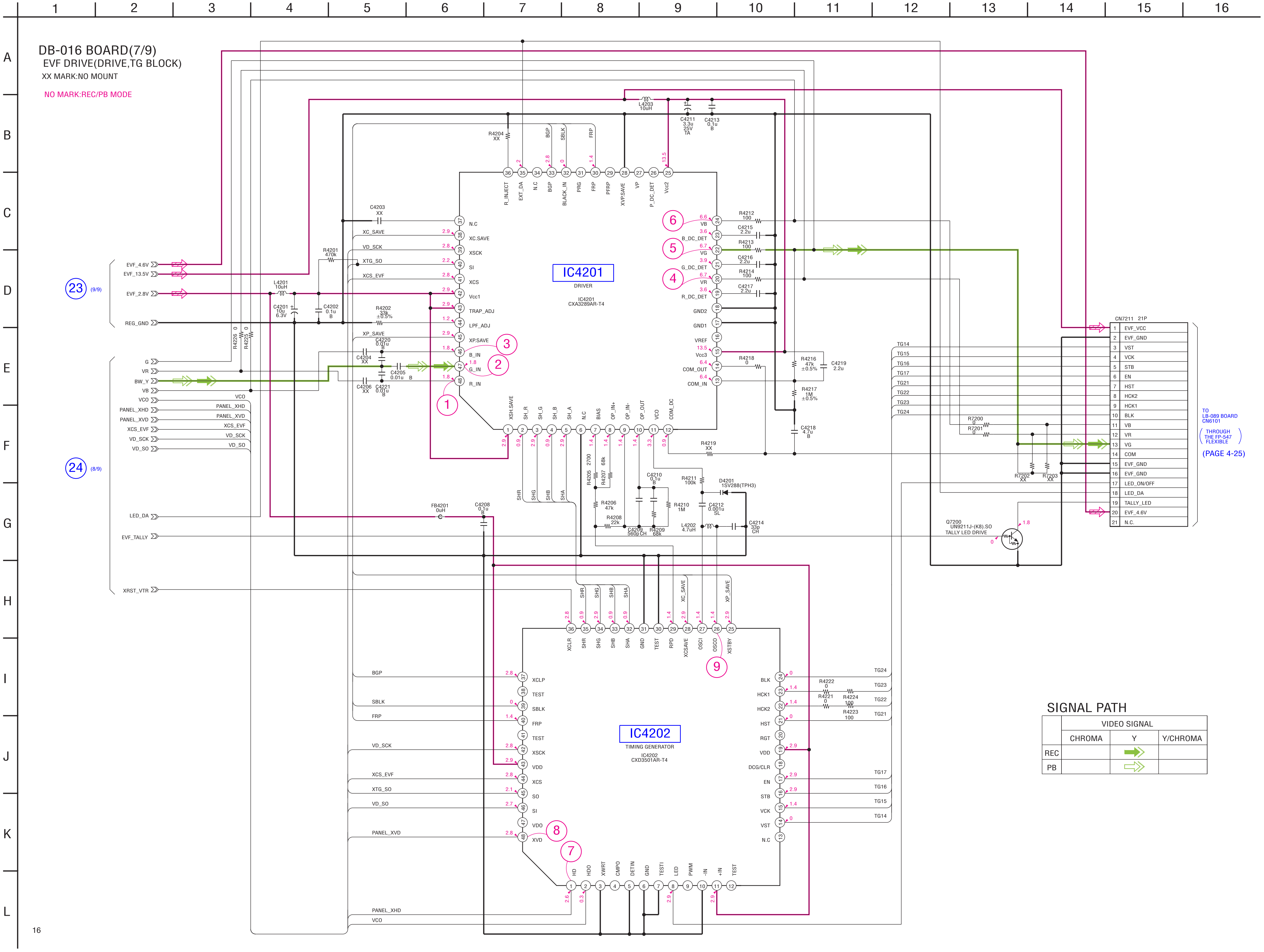
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
DB-016 BOARD(6/9)
VIDEO IN/OUT SELECT(I/O BLOCK)
XX MARK:NO MOUNT
▲:Voltage measurement of the CSP IC and the Transistors with ▲ mark,is not possible.
IC7001_CK
IC2001_APC_ERROR
IC7001_C_OUT
IC7001_Y_OUT
VIDEO_I/O
S_C_I/O
S_Y_I/O
SDC_IN
XVIDEO_IN
XCS_IC7001
VD_SO
VD_SCK
ACC_CONT
AGC_CONT
IC2101_Y_OUT
IC2101_C_OUT
A_4.6V
D_2.8V
REG_GND
FB7001 0uH
21 (8/9)
22 (9/9)
Q7001 EC3201C-PM-TL DC LEVEL DETECTOR
Q7002 UNRL11300AS0 VIDEO SW
Q7003 XX
Q7004 2SC5376C-B(TPL3) SWITCH
Q7005 2SC5376C-B(TPL3) SWITCH
R7001 4700
R7002 4700
R7003 100
R7004 220k
R7005 XX
R7006 1k
R7007 1k
R7008 33
R7009 33
R7010 33
R7011 33
R7012 33
R7013 33
R7016 10k
R7017 22k ±0.5%
R7018 1k
R7019 33k
R7020 1k
R7021 39k
R7022 220
R7023 10k
R7024 1k
R7025 1k
R7026 1k
R7027 1k
R7028 1k
C7001 0.01u B
C7002 0.01u B
C7003 XX
C7004 2.2u B
C7005 2.2u B
C7006 2.2u B
C7007 0.01u B
C7008 0.22u B
C7009 1u B
C7010 1u B
C7011 0.033u B
C7012 1u B
C7013 4.7u B
C7014 1u B
C7015 XX
C7016 1u B
C7017 1u B
C7018 0.01u B
C7019 270p CH
C7020 0.001u B
C7021 0.1u B
C7022 XX
C7023 2.2u B
C7024 2.2u B
C7025 0.01u B
C7026 220u 5V TA
C7027 220u TA 5V
C7028 0.01u B
C7029 4.7u B
C7030 XX
C7031 22p CH
L7001 10uH
L7002 10uH
L7003 0.68uH
L7004 10uH 2520
X7001 13.5MHz
S_C_I/O
S_Y_I/O
VIDEO_I/O
DR_C_OUT
DR_Y_OUT
DR_V_OUT
AGC_CONT
ACC_CONT
VD_SO
VD_SCK
XCS_IC7001
IC7001
VIDEO IN/OUT SELECT
▲ IC7001 AN2225NBBTBA CSP(CHIP SIZE PACKAGE)IC
INPUT_Y_OUT
VREF
INPUT_C_OUT
PLL_GND
BGT_OUT
APC_FIL
EXTAL
PLL_VCC
XTAL
MM_TC3
4FSC_OUT
MM_TC2
IR
MAIN_GND1
Y_IN1
MAIN_GND2
SYNC_SEP_TC
Y_IN2
CLAMP_TC1
Y_IN3
CLAMP_TC2
Y_IN4
Y_GCA_CONT
C_IN1
IR_V_OUT
V_VCC
DRV_V_OUT
V_INV
V_GND
Y_GND
DRV_Y_OUT
Y_INV
Y_VCC
C_VCC
DRV_C_OUT
SDC
C_GCA_CONT
AGC_VOUT
C_IN2
MAIN_VCC
C_IN3
D_GND
C_IN4
D_VCC
SI
XSCK
XCS
C_GND
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	➡➡➡
PB	⇨	⇨⇨	⇨⇨⇨

4-2. SCHEMATIC DIAGRAMS | DB-016 BOARD SIDE A | DB-016 BOARD SIDE B

For Schematic Diagram
- Refer to page 4-123 for printed wiring board.
- Refer to page 4-131 for waveforms.

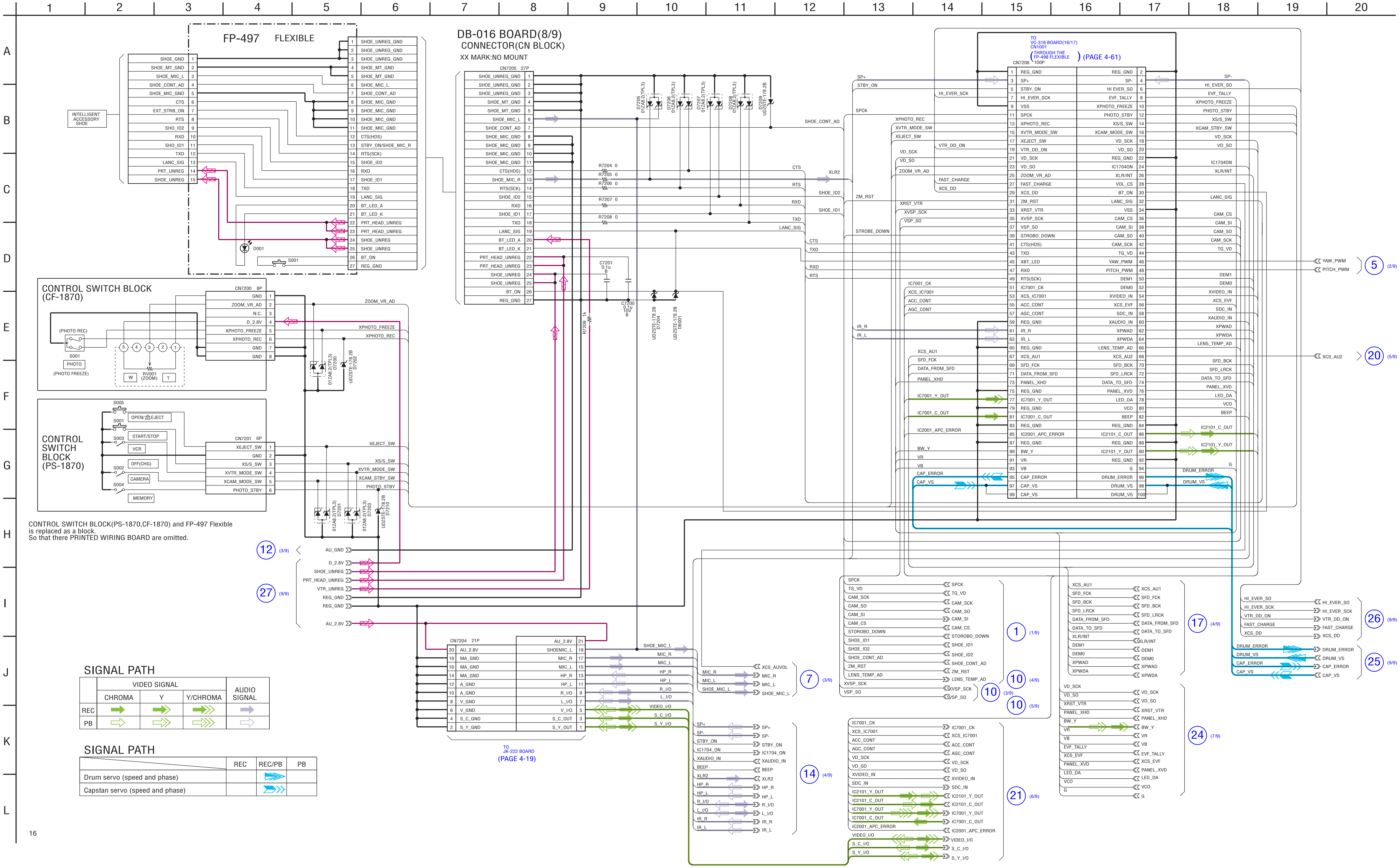

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K L
DB-016 BOARD(7/9)
EVF DRIVE(DRIVE,TG BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
23 (9/9)
EVF_4.6V
EVF_13.5V
EVF_2.8V
REG_GND
G
VR
BW_Y
VB
VCO
PANEL_XHD
PANEL_XVD
XCS_EVF
VD_SCK
VD_SO
24 (8/9)
LED_DA
EVF_TALLY
XRST_VTR
IC4201
DRIVER
IC4201
CXA3289AR-T4
R_INJECT
EXT_DA
N.C
BGP
BLACK_IN
PRG
FRP
PFRP
XVP.SAVE
VP
P_DC_DET
Vcc2
XC.SAVE
XSCK
SI
XCS
Vcc1
TRAP_ADJ
LPF_ADJ
XP.SAVE
B_IN
G_IN
R_IN
VB
B_DC_DET
VG
G_DC_DET
VR
R_DC_DET
GND2
GND1
VREF
Vcc3
COM_OUT
COM_IN
XSH SAVE
SH_R
SH_G
SH_B
SH_A
BIAS
OP_IN+
OP_IN-
OP_OUT
VDD
COM_DC
L4203 10uH
C4211 3.3u 25V TA
C4213 0.1u B
R4204 XX
L4201 10uH
C4201 10u 6.3V
C4202 0.1u B
R4201 470k
R4202 33k ±0.5%
C4203 XX
C4204 XX
C4220 0.01u B
C4205 0.01u B
C4206 XX
C4221 0.01u B
R4226 0
R4225 0
R4212 100
C4215 2.2u
R4213 100
C4216 2.2u
R4214 100
C4217 2.2u
R4218 0
R4216 47k ±0.5%
C4219 2.2u
R4217 1M ±0.5%
C4218 4.7u B
R4219 XX
R4205 2700
R4207 68k
R4206 47k
R4208 22k
C4209 560p CH
R4209 68k
C4210 0.1u B
R4211 100k
D4201 1SV288(TPH3)
R4210 1M
C4212 0.001u SL
L4202 4.7uH
C4214 33p CH
FB4201 0uH
C4208 0.1u B
IC4202
TIMING GENERATOR
IC4202
CXD3501AR-T4
XCLR
SHR
SHG
SHB
SHA
GND
TEST
RPD
XCSAVE
OSCI
OSCO
XSTBY
XCLP
TEST
SBLK
FRP
XSCK
VDD
XCS
SO
SI
VDO
XVD
HD
HDO
XWRT
CMPO
DETIN
GND
TESTI
LED
PWM
-IN
+IN
TEST
BLK
HCK1
HCK2
HST
RGT
VDD
DCG/CLR
EN
STB
VCK
VST
N.C
R4222 0
R4221 0
R4224 100
R4223 100
TG14 TG15 TG16 TG17 TG21 TG22 TG23 TG24
BGP
SBLK
FRP
VD_SCK
XCS_EVF
XTG_SO
VD_SO
PANEL_XVD
PANEL_XHD
VCO
CN7211 21P
1 EVF_VCC
2 EVF_GND
3 VST
4 VCK
5 STB
6 EN
7 HST
8 HCK2
9 HCK1
10 BLK
11 VB
12 VR
13 VG
14 COM
15 EVF_GND
16 EVF_GND
17 LED_ON/OFF
18 LED_DA
19 TALLY_LED
20 EVF_4.6V
21 N.C.
TO LB-089 BOARD CN6101
THROUGH THE FP-547 FLEXIBLE
(PAGE 4-25)
R7200 0
R7201 0
R7202 XX
R7203 XX
Q7200
UN9211J-(K8).SO
TALLY LED DRIVE
1 2 3 4 5 6 7 8 9
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	

For Schematic Diagram

- Refer to page 4-123 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
FP-497 FLEXIBLE
INTELLIGENT ACCESSORY SHOE
D001
S001
DB-016 BOARD(8/9)
CONNECTOR(CN BLOCK)
XX MARK:NO MOUNT
CN7205 27P
TO VC-318 BOARD(16/17) CN1001 THROUGH THE FP-498 FLEXIBLE
(PAGE 4-61)
CN7206 100P
CONTROL SWITCH BLOCK (CF-1870)
CN7200 8P
(PHOTO REC)
S001
PHOTO
(PHOTO FREEZE)
RV001 (ZOOM)
W
T
CONTROL SWITCH BLOCK (PS-1870)
S005
OPEN/EJECT
S001
S003
START/STOP
VCR
S002
OFF(CHG)
CAMERA
S004
MEMORY
CN7201 6P
CN7204 21P
TO JK-222 BOARD (PAGE 4-19)
D7205
D7206
D7207
D7208
D7209
D7200
D7201
D7202
D7203
D7204
D6001
D7210
R7204
R7205
R7206
R7207
R7208
R7209
C7201
C7200
12 (3/9)
27 (9/9)
5 (2/9)
20 (5/9)
1 (1/9)
7 (3/9)
10 (4/9)
10 (3/9)
10 (5/9)
14 (4/9)
21 (6/9)
17 (4/9)
24 (7/9)
26 (9/9)
25 (9/9)
16

CONTROL SWITCH BLOCK(PS-1870,CF-1870) and FP-497 Flexible is replaced as a block.
So that there PRINTED WIRING BOARD are omitted.

SIGNAL PATH

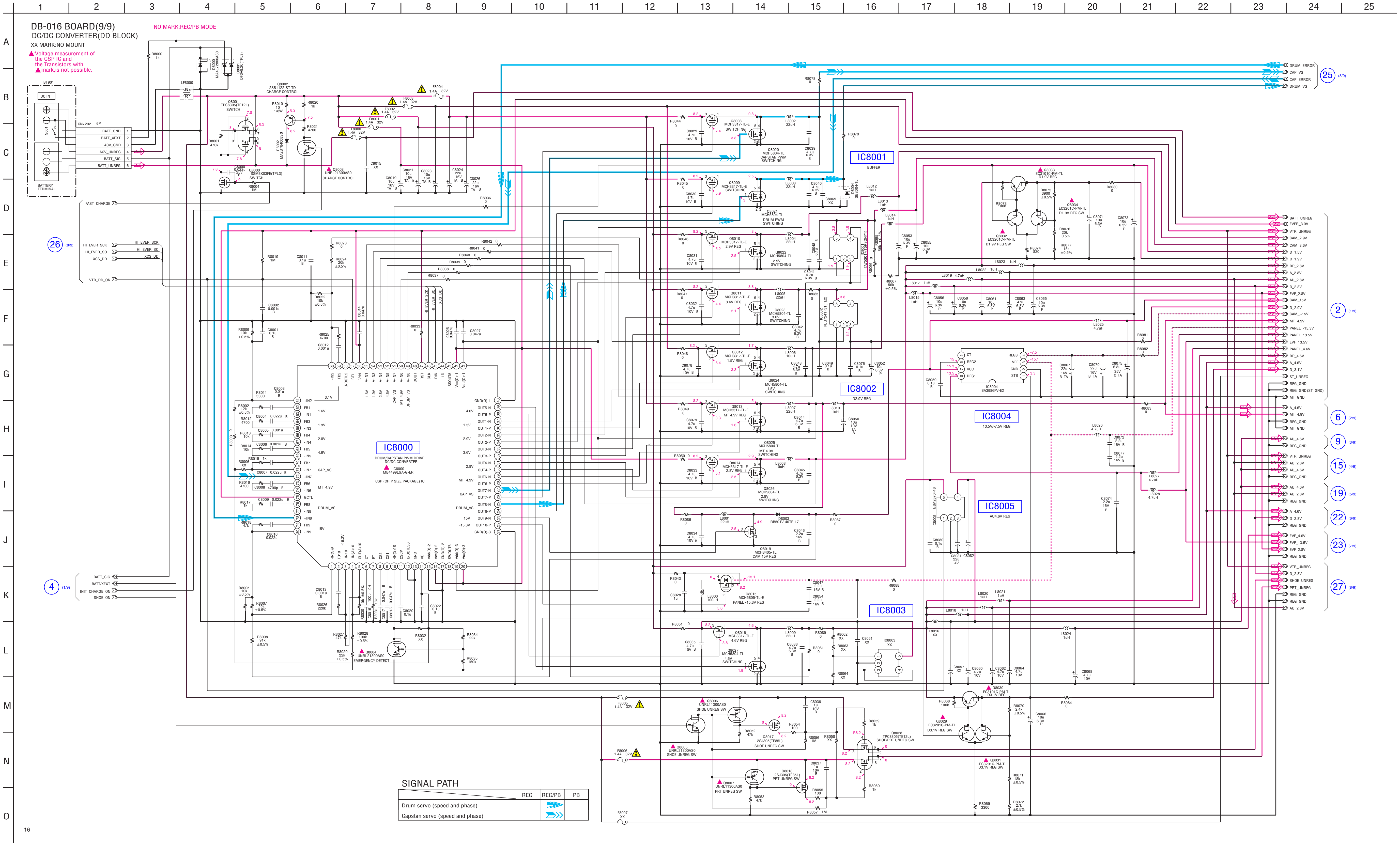
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		➡	
Capstan servo (speed and phase)		➡	

For Schematic Diagram

- Refer to page 4-123 for printed wiring board.


DB-016 BOARD(9/9)
DC/DC CONVERTER(DD BLOCK)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
⚠:Voltage measurement of the CSP IC and the Transistors with ⚠mark,is not possible.
BT901
DC IN
BATTERY TERMINAL
CN7202 6P
BATT_GND
BATT_XEXT
ACV_GND
ACV_UNREG
BATT_SIG
BATT_UNREG
FAST_CHARGE
HI_EVER_SCK
HI_EVER_SO
XCS_DD
VTR_DD_ON
BATT_SIG
BATT/XEXT
INIT_CHARGE_ON
SHOE_ON
IC8000
DRUM/CAPSTAN PWM DRIVE DC/DC CONVERTER
IC8000 MB44991GA-G-ER
CSP (CHIP SIZE PACKAGE) IC
IC8001
BUFFER
IC8002
D2.9V REG
IC8003
IC8004
13.5V/-7.5V REG
IC8004 BA3980FV-E2
IC8005
AU4.6V REG
Q8000 SSM3K03FE(TPL3) SWITCH
Q8001 TPC8305(TE12L) SWITCH
Q8002 2SB1122-ST-TD CHARGE CONTROL
Q8003 UNRL21300AS0 CHARGE CONTROL
Q8004 UNRL21300AS0 EMERGENCY DETECT
Q8008 MCH3317-TL-E SWITCHING
Q8020 MCH5804-TL CAPSTAN PWM SWITCHING
Q8009 MCH3317-TL-E SWITCHING
Q8021 MCH5804-TL DRUM PWM SWITCHING
Q8010 MCH3317-TL-E 2.9V REG
Q8022 MCH5804-TL 2.9V SWITCHING
Q8011 MCH3317-TL-E 3.6V REG
Q8023 MCH5804-TL 3.6V SWITCHING
Q8012 MCH3317-TL-E 1.5V REG
Q8024 MCH5804-TL 1.5V SWITCHING
Q8013 MCH3317-TL-E MT 4.9V REG
Q8025 MCH5804-TL MT 4.9V SWITCHING
Q8014 MCH3317-TL-E 2.8V REG
Q8026 MCH5804-TL 2.8V SWITCHING
Q8019 MCH3405-TL CAM 15V REG
Q8015 MCH5805-TL-E PANEL -15.3V REG
Q8016 MCH3317-TL-E 4.6V REG
Q8027 MCH5804-TL 4.6V SWITCHING
Q8005 UNRL21300AS0 SHOE UNREG SW
Q8006 UNRL11300AS0 SHOE UNREG SW
Q8017 2SJ305(TE85L) SHOE UNREG SW
Q8028 TPC8305(TE12L) SHOE/PRT UNREG SW
Q8007 UNRL11300AS0 PRT UNREG SW
Q8018 2SJ305(TE85L) PRT UNREG SW
Q8029 EC3201C-PM-TL D3.1V REG SW
Q8030 EC3101C-PM-TL D3.1V REG
Q8031 EC3201C-PM-TL D3.1V REG SW
Q8032 EC3201C-PM-TL D1.9V REG SW
Q8033 EC3101C-PM-TL D1.9V REG
Q8034 EC3201C-PM-TL D1.9V REG SW
DRUM_ERROR
CAP_VS
CAP_ERROR
DRUM_VS
25 (8/9)
BATT_UNREG
EVER_3.0V
VTR_UNREG
CAM_2.9V
CAM_3.6V
D_1.5V
D_1.9V
RP_2.8V
A_2.8V
AU_2.8V
D_2.8V
EVF_2.8V
CAM_15V
D_2.9V
CAM_-7.5V
MT_4.9V
PANEL_-15.3V
PANEL_13.5V
EVF_13.5V
PANEL_4.6V
RP_4.6V
A_4.6V
D_3.1V
ST_UNREG
REG_GND
REG_GND(ST_GND)
MT_GND
2 (1/9)
6 (2/9)
9 (3/9)
15 (4/9)
19 (5/9)
22 (6/9)
23 (7/9)
26 (8/9)
27 (8/9)
4 (1/9)
SHOE_UNREG
PRT_UNREG
16

SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		⇒	
Capstan servo (speed and phase)		⇒	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

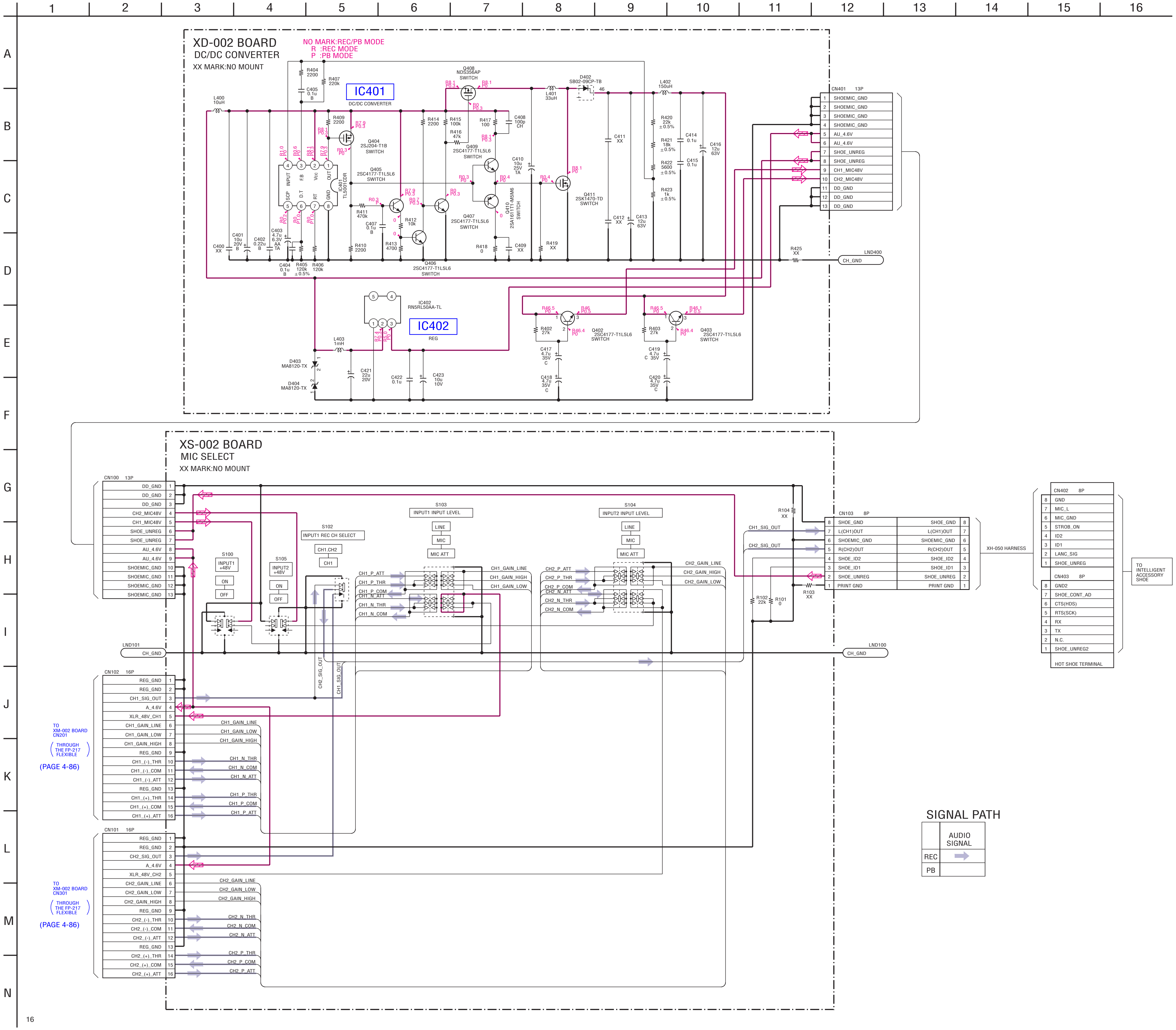
COVER

4-2. SCHEMATIC DIAGRAMS

XD-002, XS-002 PRINTED WIRING BOARD

For Schematic Diagram

- Refer to page 4-115 for printed wiring board.

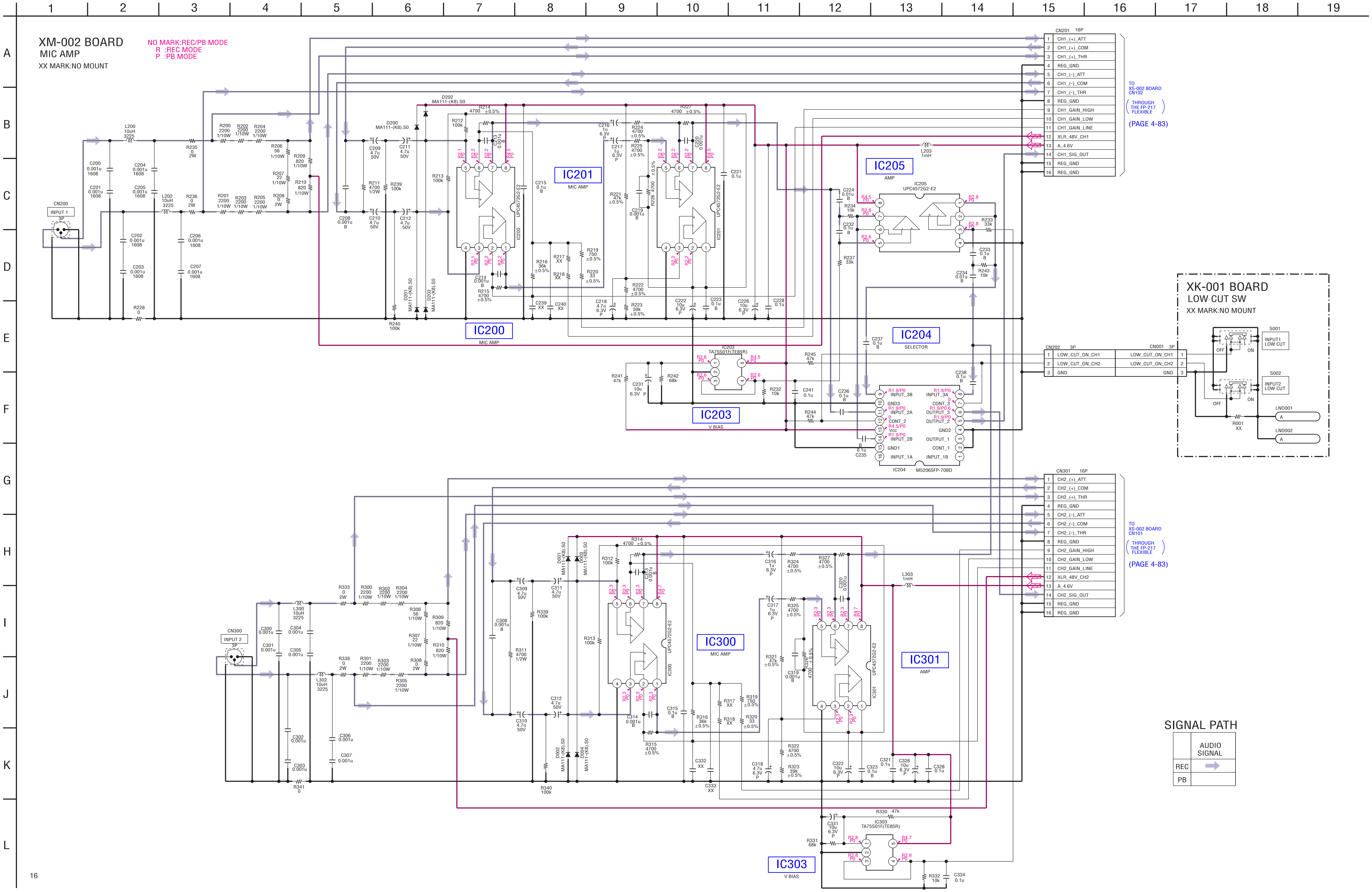

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K L M N
XD-002 BOARD
DC/DC CONVERTER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC401
DC/DC CONVERTER
IC402
RN5RL50AA-TL
REG
Q404 2SJ204-T1B SWITCH
Q405 2SC4177-T1L5L6 SWITCH
Q406 2SC4177-T1L5L6 SWITCH
Q407 2SC4177-T1L5L6 SWITCH
Q408 NDS356AP SWITCH
Q409 2SC4177-T1L5L6 SWITCH
Q410 2SA1811T1-M5M6 SWITCH
Q411 2SK1470-TD SWITCH
Q402 2SC4177-T1L5L6 SWITCH
Q403 2SC4177-T1L5L6 SWITCH
D402 SB02-09CP-TB
D403 MA8120-TX
D404 MA8120-TX
L400 10uH
L401 33uH
L402 150uH
L403 1mH
CN401 13P
SHOEMIC_GND
AU_4.6V
SHOE_UNREG
CH1_MIC48V
CH2_MIC48V
DD_GND
LND400
CH_GND
XS-002 BOARD
MIC SELECT
XX MARK:NO MOUNT
CN100 13P
CN101 16P
CN102 16P
CN103 8P
S100 INPUT1 +48V ON OFF
S105 INPUT2 +48V ON OFF
S102 INPUT1 REC CH SELECT CH1.CH2 CH1
S103 INPUT1 INPUT LEVEL LINE MIC MIC ATT
S104 INPUT2 INPUT LEVEL LINE MIC MIC ATT
CH1_SIG_OUT
CH2_SIG_OUT
LND100
LND101
TO XM-002 BOARD CN201 (THROUGH THE FP-217 FLEXIBLE) (PAGE 4-86)
TO XM-002 BOARD CN301 (THROUGH THE FP-217 FLEXIBLE) (PAGE 4-86)
XH-050 HARNESS
CN402 8P
CN403 8P
HOT SHOE TERMINAL
TO INTELLIGENT ACCESSORY SHOE
SIGNAL PATH
AUDIO SIGNAL
REC
PB
16

4-2. SCHEMATIC DIAGRAMS

XM-002, XK-001 PRINTED WIRING BOARD

For Schematic Diagram

- Refer to page 4-117 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L
XM-002 BOARD
MIC AMP
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
CN200 INPUT 1 3P
CN300 INPUT 2 3P
IC200 MIC AMP
IC201 MIC AMP
IC203 V BIAS
IC203 TA75S01F(TE85R)
IC204 SELECTOR
IC204 M52065FP-70BD
IC205 AMP
IC205 UPC4572G2-E2
IC300 MIC AMP
IC301 AMP
IC303 V BIAS
IC303 TA75S01F(TE85R)
CN201 16P
1 CH1_(+)_ATT
2 CH1_(+)_COM
3 CH1_(+)_THR
4 REG_GND
5 CH1_(-)_ATT
6 CH1_(-)_COM
7 CH1_(-)_THR
8 REG_GND
9 CH1_GAIN_HIGH
10 CH1_GAIN_LOW
11 CH1_GAIN_LINE
12 XLR_48V_CH1
13 A_4.6V
14 CH1_SIG_OUT
15 REG_GND
16 REG_GND
TO XS-002 BOARD CN102 (THROUGH THE FP-217 FLEXIBLE)
(PAGE 4-83)
CN301 16P
1 CH2_(+)_ATT
2 CH2_(+)_COM
3 CH2_(+)_THR
4 REG_GND
5 CH2_(-)_ATT
6 CH2_(-)_COM
7 CH2_(-)_THR
8 REG_GND
9 CH2_GAIN_HIGH
10 CH2_GAIN_LOW
11 CH2_GAIN_LINE
12 XLR_48V_CH2
13 A_4.6V
14 CH2_SIG_OUT
15 REG_GND
16 REG_GND
TO XS-002 BOARD CN101 (THROUGH THE FP-217 FLEXIBLE)
(PAGE 4-83)
CN202 3P
1 LOW_CUT_ON_CH1
2 LOW_CUT_ON_CH2
3 GND
XK-001 BOARD
LOW CUT SW
XX MARK:NO MOUNT
CN001 3P
LOW_CUT_ON_CH1
LOW_CUT_ON_CH2
GND
S001 INPUT1 LOW CUT
S002 INPUT2 LOW CUT
OFF ON
R001 XX
LND001
LND002
INPUT_3B INPUT_3A
GND3 CONT_3
INPUT_2A OUTPUT_3
CONT_2 OUTPUT_2
Vcc GND2
INPUT_2B OUTPUT_1
GND1 CONT_1
INPUT_1A INPUT_1B
SIGNAL PATH
AUDIO SIGNAL
REC
PB
16

COVER

4-3. PRINTED WIRING BOARDS

Link

- SE-132 BOARD
- CD-389 BOARD (SIDE A)
- CD-389 BOARD (SIDE B)
- MA-425 BOARD
- PD-191 BOARD
- JK-222 BOARD (SIDE A)
- JK-222 BOARD (SIDE B)
- CK-134 BOARD (SIDE A)
- CK-134 BOARD (SIDE B)
- LB-089 BOARD
- FP-504 FLEXIBLE BOARD
- FP-495 FLEXIBLE BOARD
- FP-497 FLEXIBLE BOARD
- FP-100, FP-102, FP-228 FLEXIBLE BOARD
- XD-002 BOARD
- XS-002 BOARD
- XM-002 BOARD
- XK-001 BOARD
- VC-318 BOARD (SIDE A)
- VC-318 BOARD (SIDE B)
- DB-016 BOARD (SIDE A)
- DB-016 BOARD (SIDE B)

- COMMON NOTE FOR PRINTED WIRING BOARDS
- WAVEFORMS
- MOUNTED PARTS LOCATION
- CIRCUIT BOARDS LOCATION
- FLEXIBLE BOARDS LOCATION

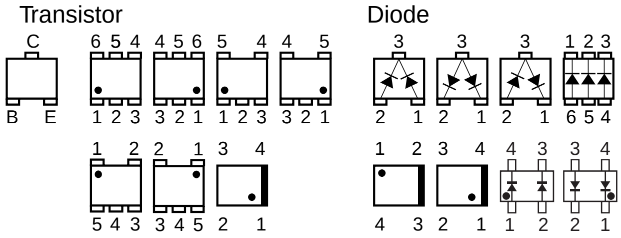
4-3. PRINTED WIRING BOARDS

THIS NOTE IS COMMON FOR WIRING BOARDS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- : Uses unleaded solder.
- 🟩 : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- ▭ : panel designation

- Chip parts.

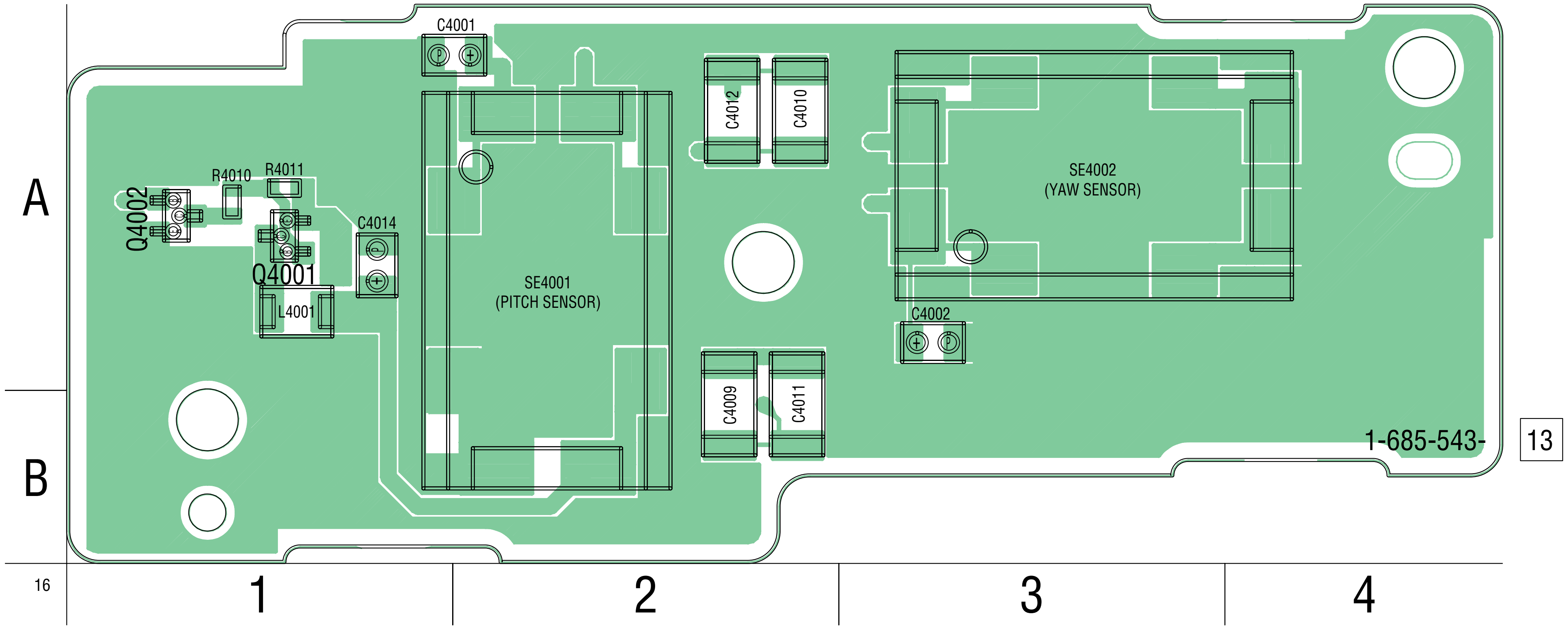

Transistor
Diode
C
B E
6 5 4
1 2 3
4 5 6
3 2 1
5 4
1 2 3
4 5
3 2 1
1 2
5 4 3
2 1
3 4 5
3 4
2 1
3
2 1
3
2 1
3
2 1
1 2 3
6 5 4
1 2
4 3
3 4
2 1
4 3
1 2
3 4
2 1

4-3. PRINTED WIRING BOARDS

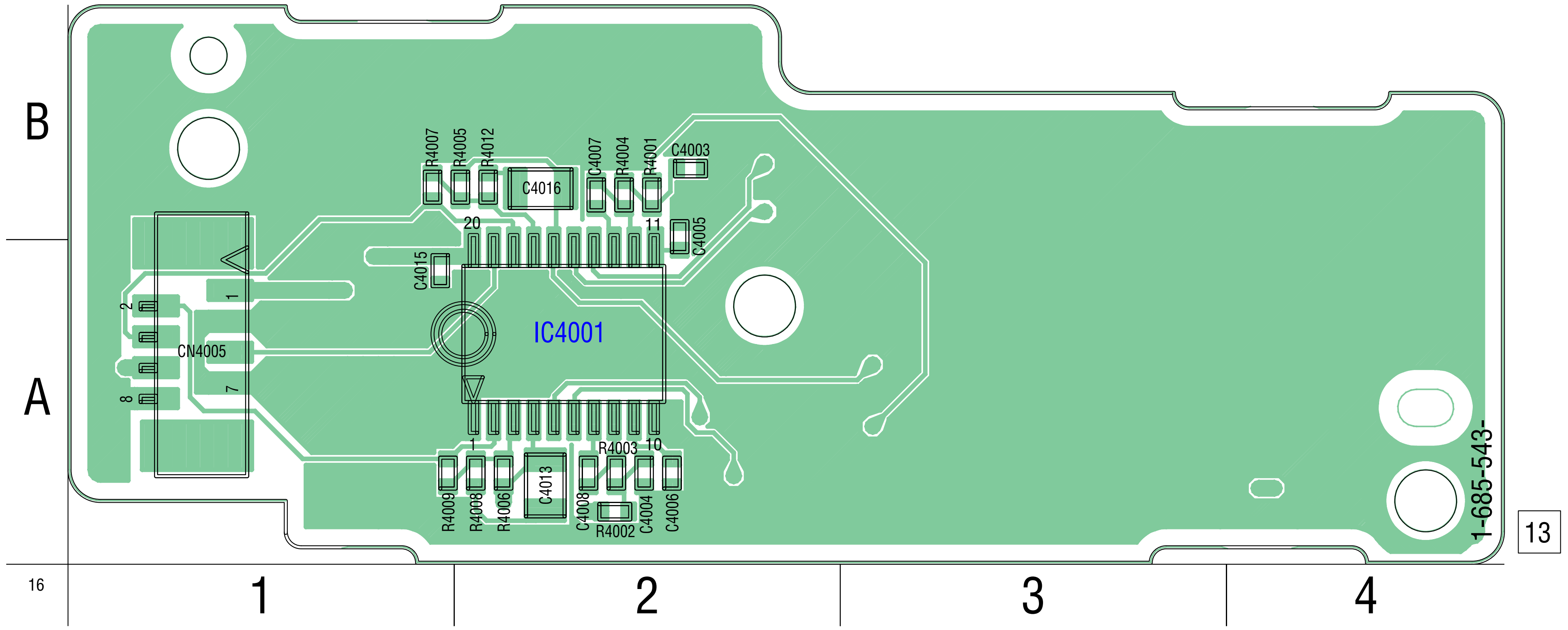
SE-132 (PITCH/YAW SENSOR) PRINTED WIRING BOARD

- 𝐋𝐅 : Uses unleaded solder.

SE-132 BOARD (SIDE A)


A
B
C4001
R4010
R4011
Q4002
Q4001
C4014
L4001
SE4001
(PITCH SENSOR)
C4012
C4010
C4009
C4011
SE4002
(YAW SENSOR)
C4002
1-685-543-
13
16
1
2
3
4

SE-132 BOARD (SIDE B)


B
A
R4007
R4005
R4012
C4016
C4007
R4004
R4001
C4003
20
11
C4005
C4015
IC4001
CN4005
1
2
7
8
R4003
10
R4009
R4008
R4006
C4013
C4008
R4002
C4004
C4006
1-685-543-
13
16
1
2
3
4

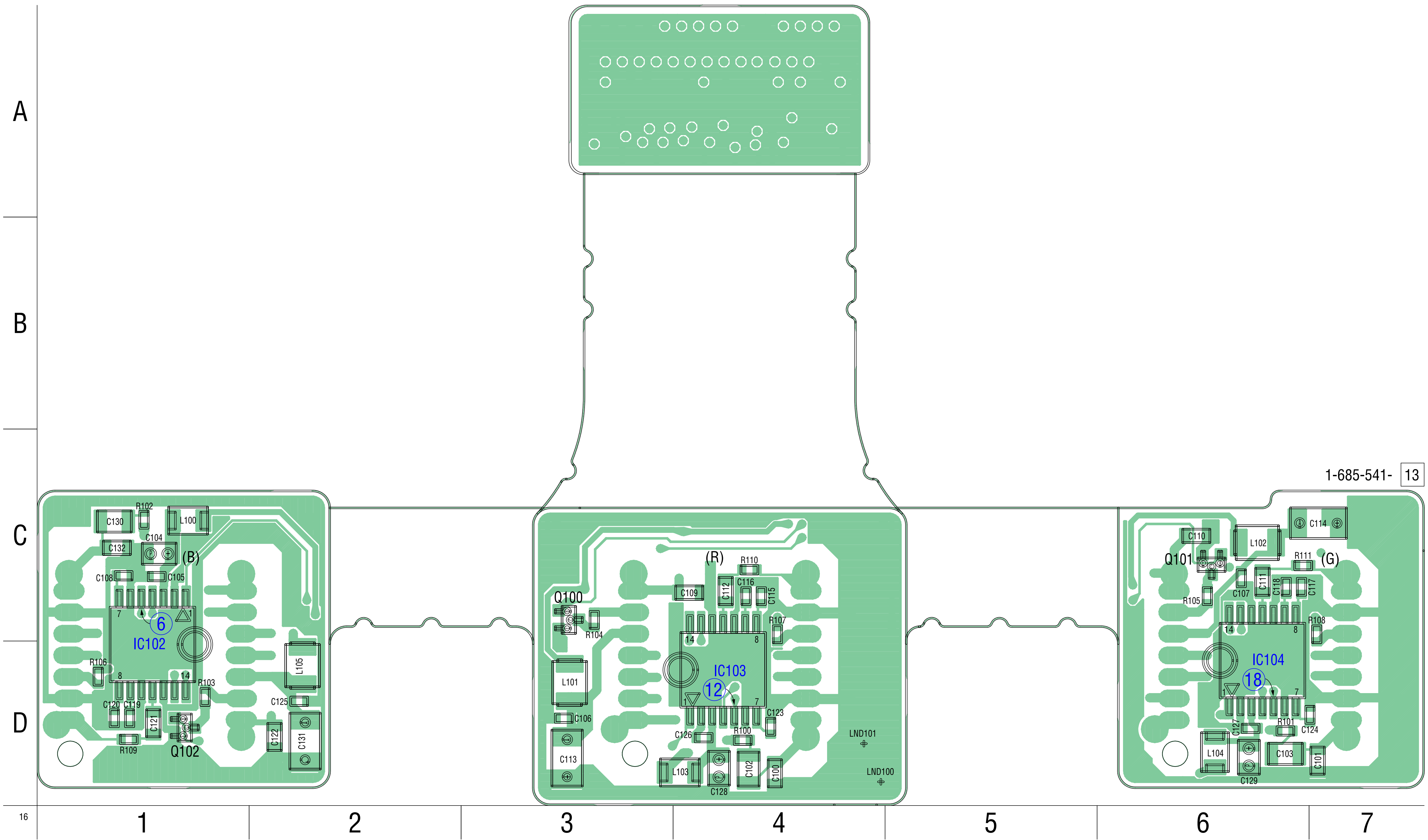
For printed wiring boards
- Refer to page 4-132 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

CD-389 (CCD IMAGER) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

CD-389 BOARD (SIDE A)

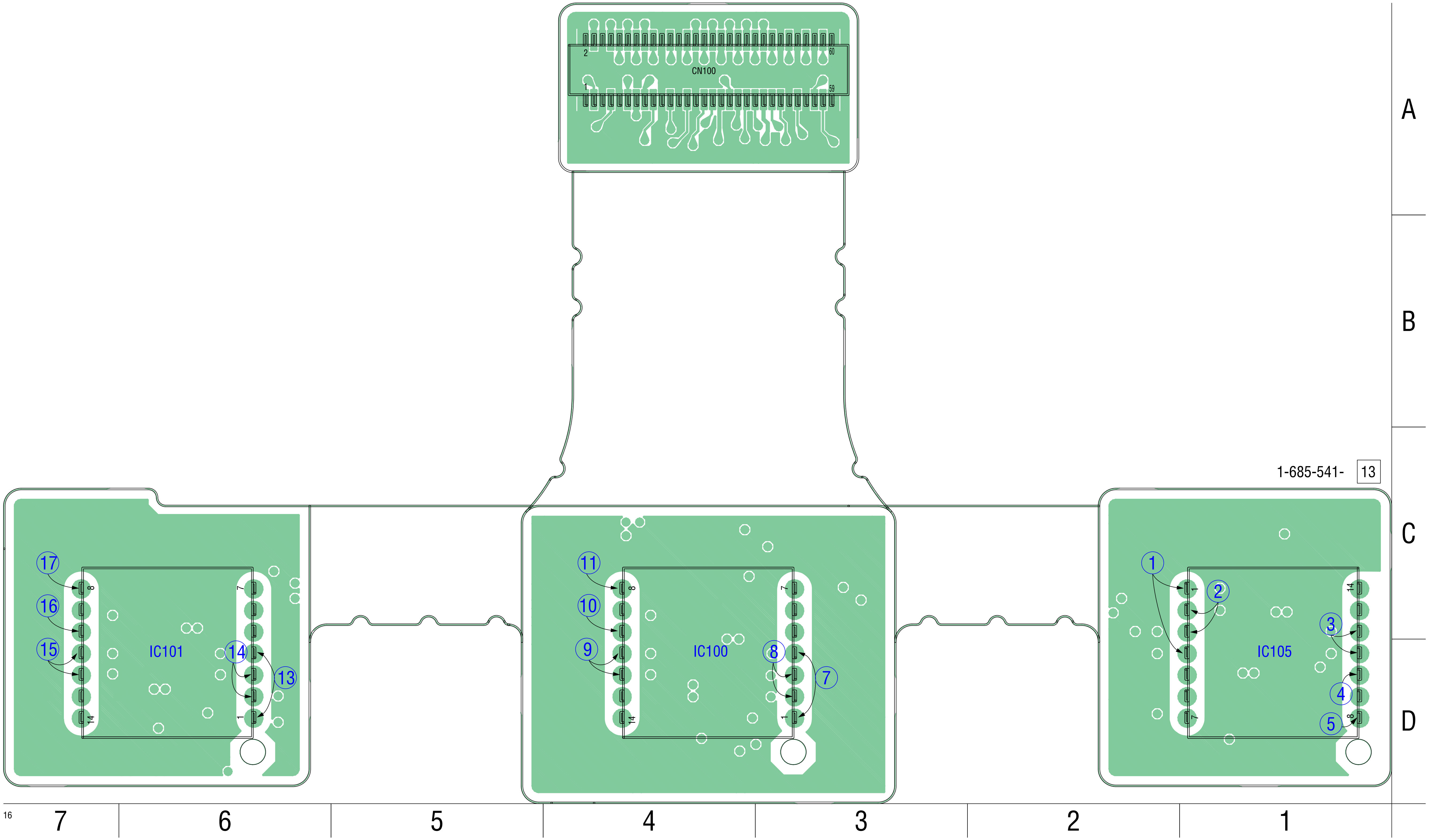

A
B
C
D
1
2
3
4
5
6
7
16
1-685-541- 13
C130
R102
L100
C132
C104
(B)
C108
C105
7
6
IC102
R106
8
14
R103
C120
C119
C121
R109
Q102
L105
C125
C122
C131
Q100
R104
(R)
R110
C109
C112
C116
C115
R107
14
8
IC103
12
7
L101
C106
C113
C126
R100
C123
L103
C128
C102
C100
LND101
LND100
C110
L102
C114
Q101
R111
(G)
R105
C107
C111
C118
C117
R108
14
8
IC104
18
1
7
C127
R101
C124
L104
C103
C101
C129

For printed wiring boards
- Refer to page 4-132 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

- LF : Uses unleaded solder.

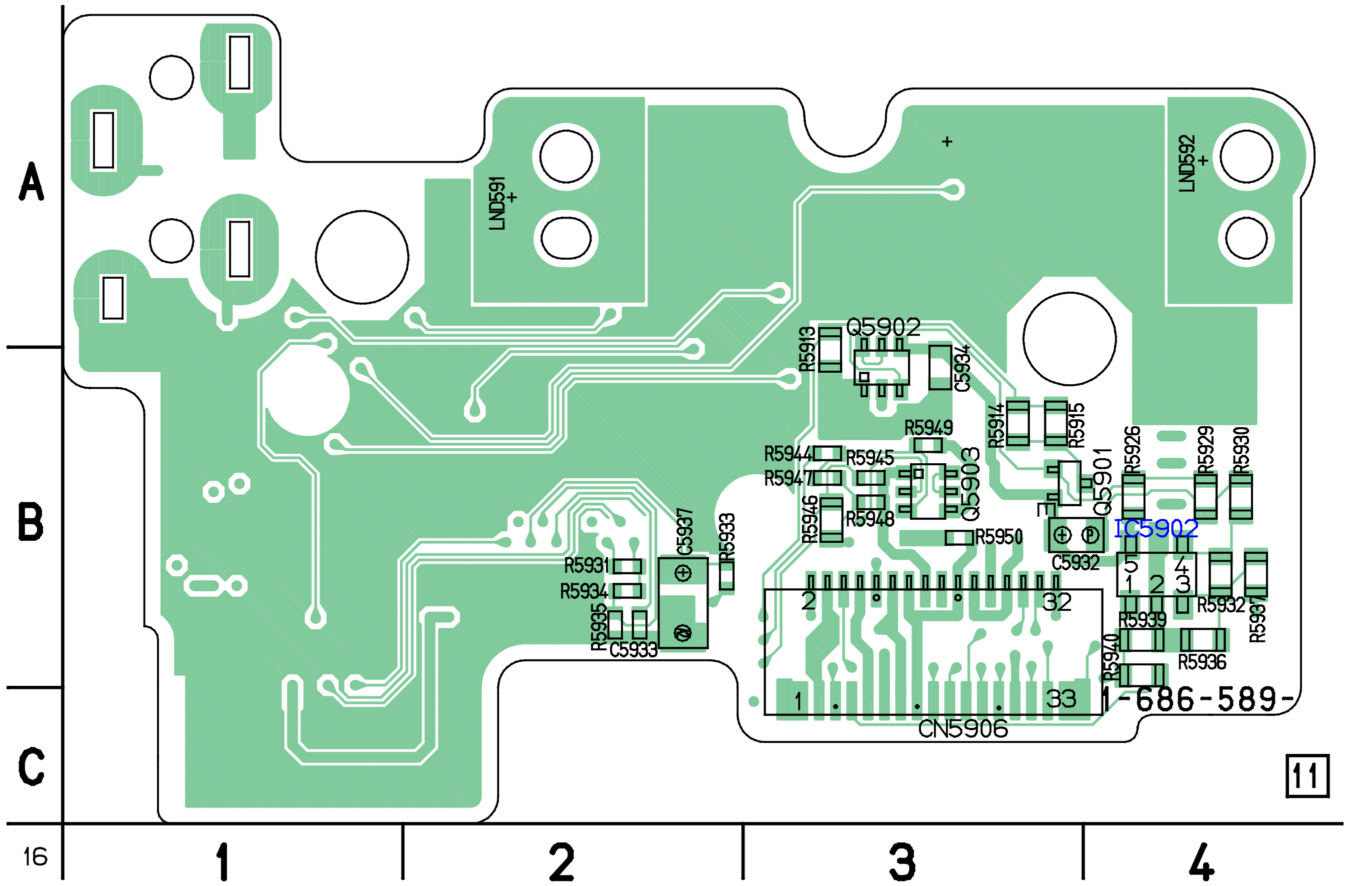
CD-389 BOARD (SIDE B)


CN100
2
60
1
59
1-685-541- 13
A
B
C
D
IC101
IC100
IC105
17
16
15
14
13
11
10
9
8
7
1
2
3
4
5
16
7
6
5
4
3
2
1

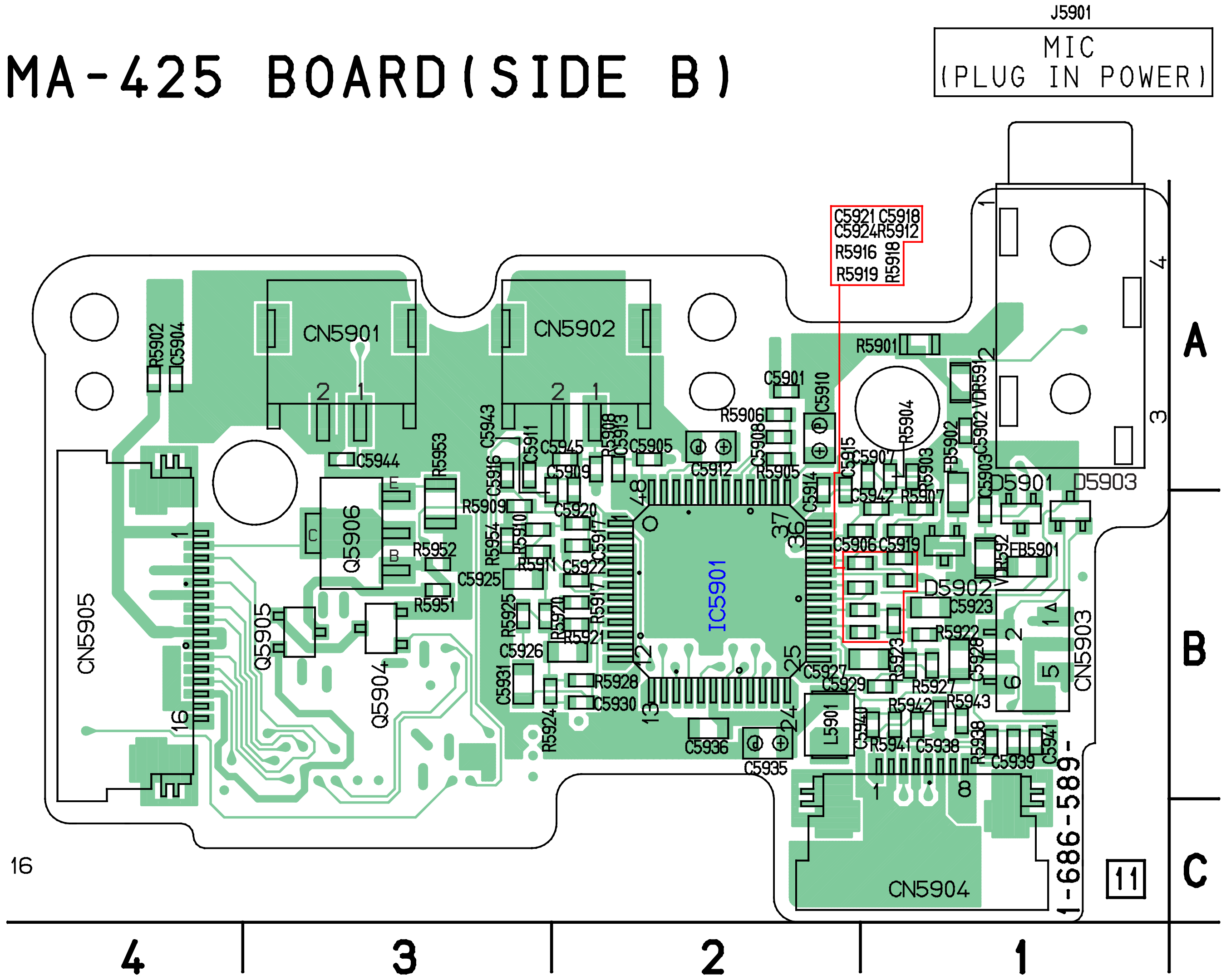
MA-425 (MIC AMP, AF LASER CONTROL) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

MA-425 BOARD(SIDE A)


A
B
C
1
2
3
4
16
LND591
LND592
Q5902
R5913
C5934
R5914
R5915
R5949
R5944
R5945
R5947
R5946
R5948
Q5903
Q5901
R5926
R5929
R5930
R5950
IC5902
C5932
C5937
R5933
R5931
R5934
R5935
C5933
R5932
R5937
R5939
R5940
R5936
CN5906
1
2
32
33
1-686-589-
11

MA-425 BOARD(SIDE B)

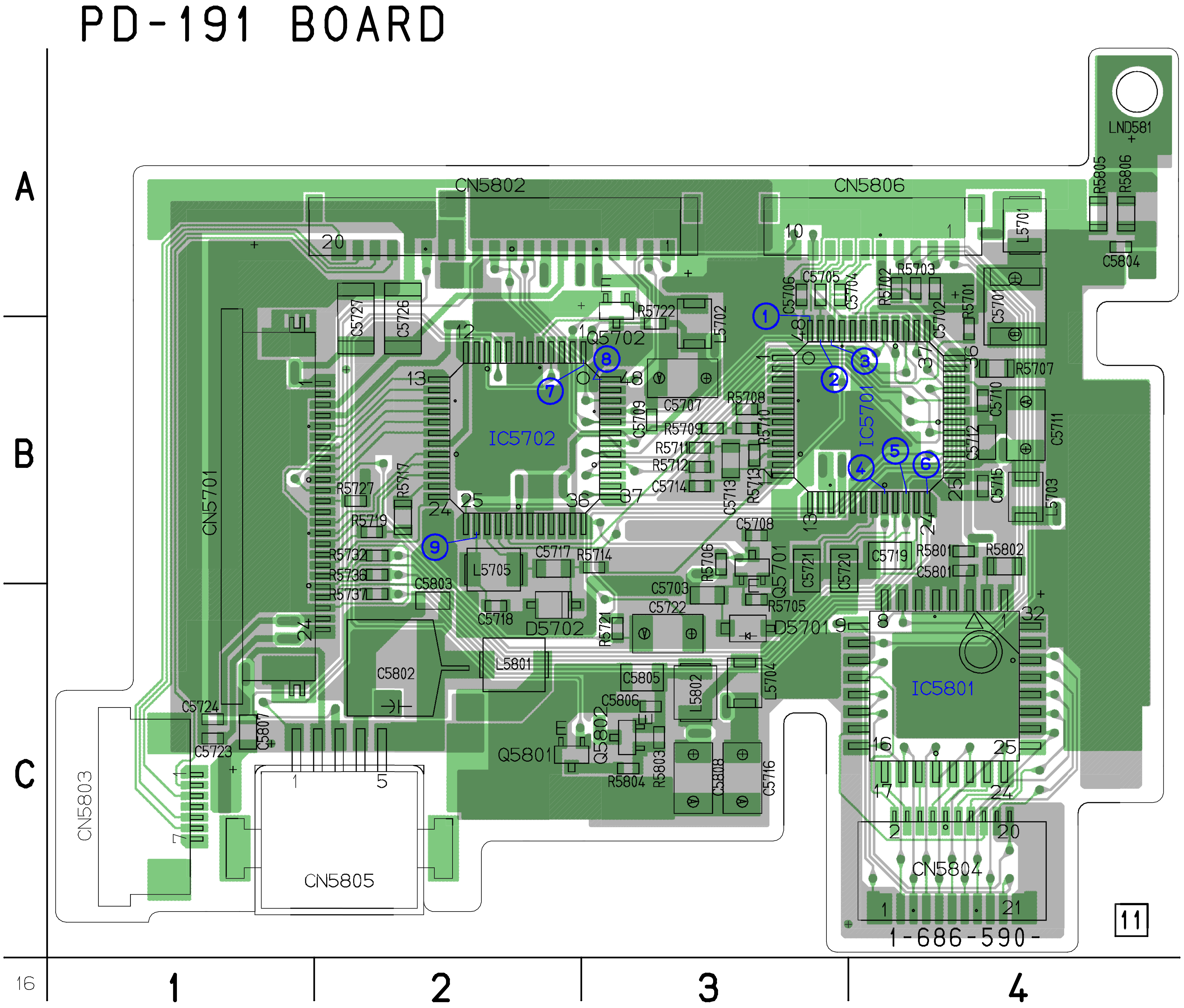

J5901
MIC
(PLUG IN POWER)
A
B
C
4
3
2
1
16
C5921 C5918
C5924 R5912
R5916
R5919
R5918
CN5901
CN5902
R5902
C5904
C5944
R5953
C5943
C5916
C5911
C5945
C5909
R5908
C5913
C5905
C5912
R5906
C5901
C5910
R5905
R5909
C5920
R5952
R5910
C5925
R5954
R5911
C5922
C5917
R5917
Q5906
Q5905
Q5904
R5951
R5925
R5920
R5921
C5926
C5931
R5928
C5930
R5924
IC5901
48
37
36
25
24
13
12
1
R5901
R5904
C5915
C5907
C5914
C5942
R5907
R5903
FB5902
C5902
VDR5912
C5903
D5901
D5903
C5906
C5919
VDR5911
FB5901
D5902
C5923
R5922
C5928
C5927
C5929
R5923
R5927
R5942
R5943
C5940
R5941
C5938
R5938
C5939
C5941
L5901
C5936
C5935
CN5905
CN5903
CN5904
1
8
1-686-589-
11

For printed wiring boards
- Refer to page 4-132 for parts location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

PD-191 (LCD DRIVER, TIMING GENERATOR, BACKLIGHT) PRINTED WIRING BOARD

- LF : Uses unleaded solder.


PD-191 BOARD
A
B
C
1
2
3
4
16
CN5802
CN5806
CN5803
CN5805
CN5804
CN5701
LND581
IC5701
IC5702
IC5801
Q5701
Q5702
Q5801
Q5802
D5701
D5702
L5701
L5702
L5703
L5704
L5705
L5801
L5802
C5701
C5702
C5703
C5704
C5705
C5706
C5707
C5708
C5709
C5710
C5711
C5712
C5713
C5714
C5715
C5716
C5717
C5718
C5719
C5720
C5721
C5722
C5723
C5724
C5726
C5727
C5801
C5802
C5803
C5804
C5805
C5806
C5807
C5808
R5701
R5702
R5703
R5705
R5706
R5707
R5708
R5709
R5710
R5711
R5712
R5713
R5714
R5717
R5719
R5721
R5722
R5727
R5732
R5736
R5737
R5801
R5802
R5803
R5804
R5805
R5806
1
2
3
4
5
6
7
8
9
1-686-590-
11

For printed wiring boards

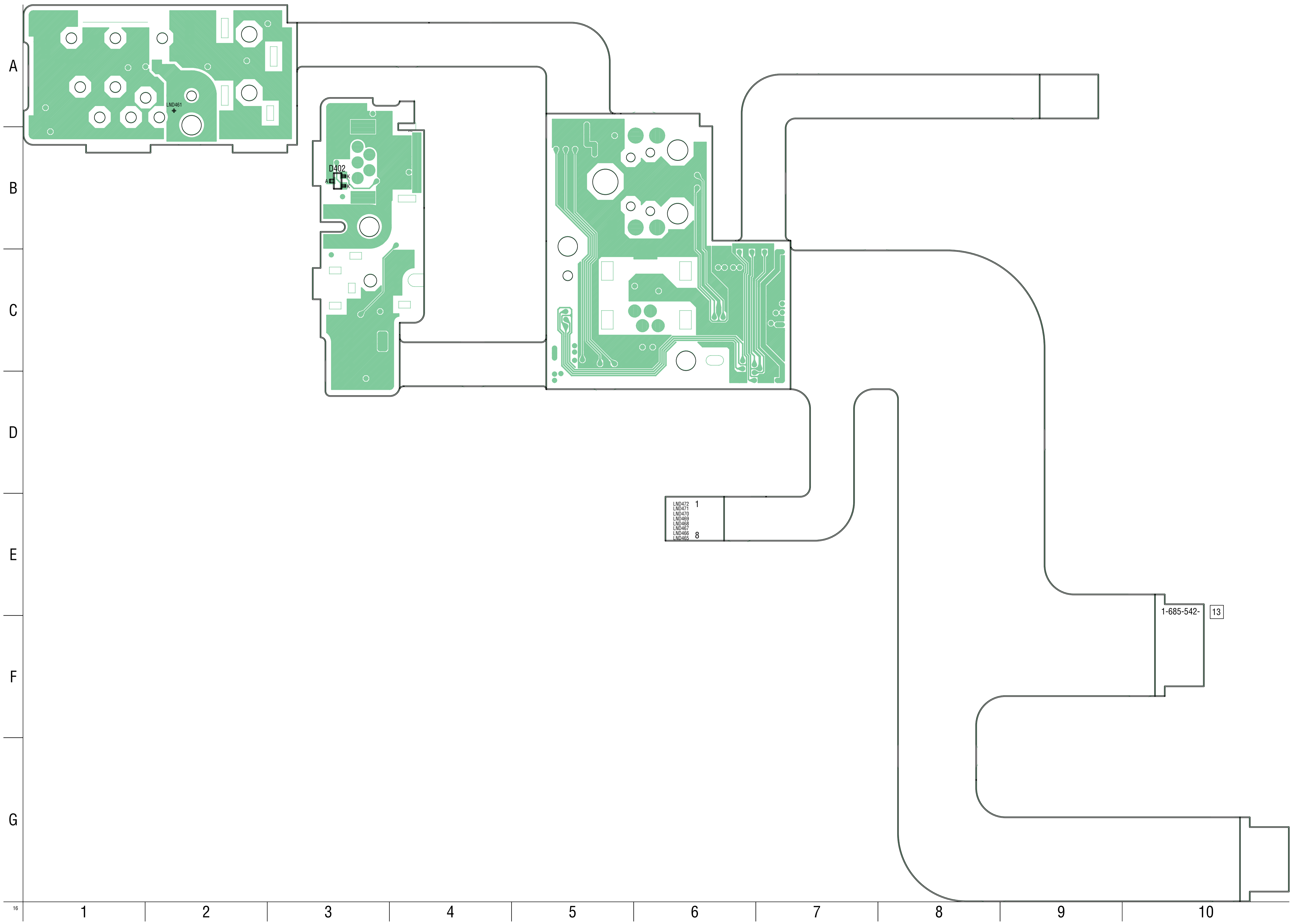
- Refer to page 4-132 for parts location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

JK-222 (AV IN/OUT, DV/USB CONNECTOR) PRINTED WIRING BOARD

- 🄻🄵 : Uses unleaded solder.

JK-222 BOARD (SIDE A)

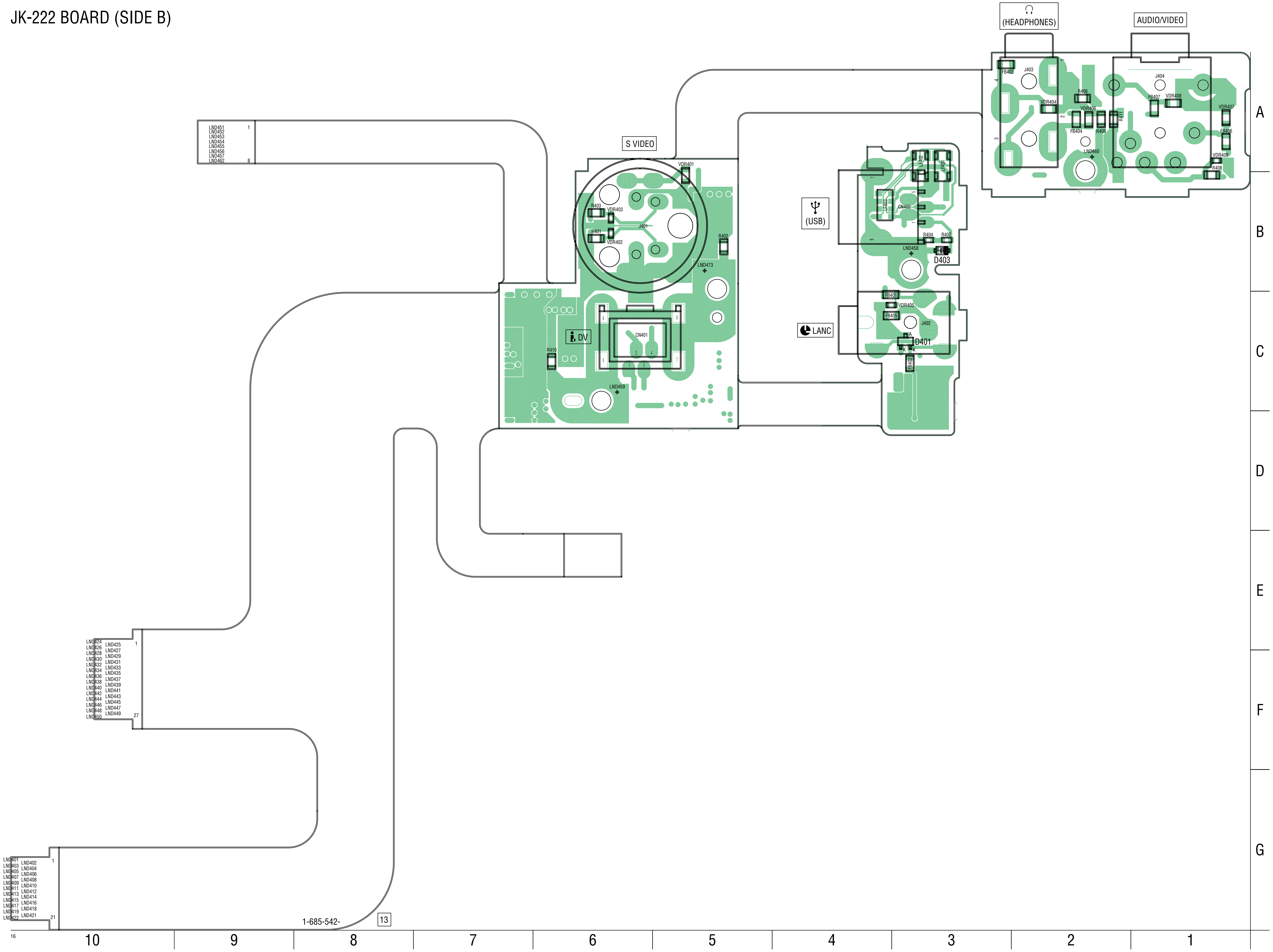

A
B
C
D
E
F
G
LND461
D402
A
K
K
LND472
LND471
LND470
LND469
LND468
LND467
LND466
LND465
1
8
1-685-542-
13
16
1
2
3
4
5
6
7
8
9
10

For printed wiring boards
- Refer to page 4-133 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

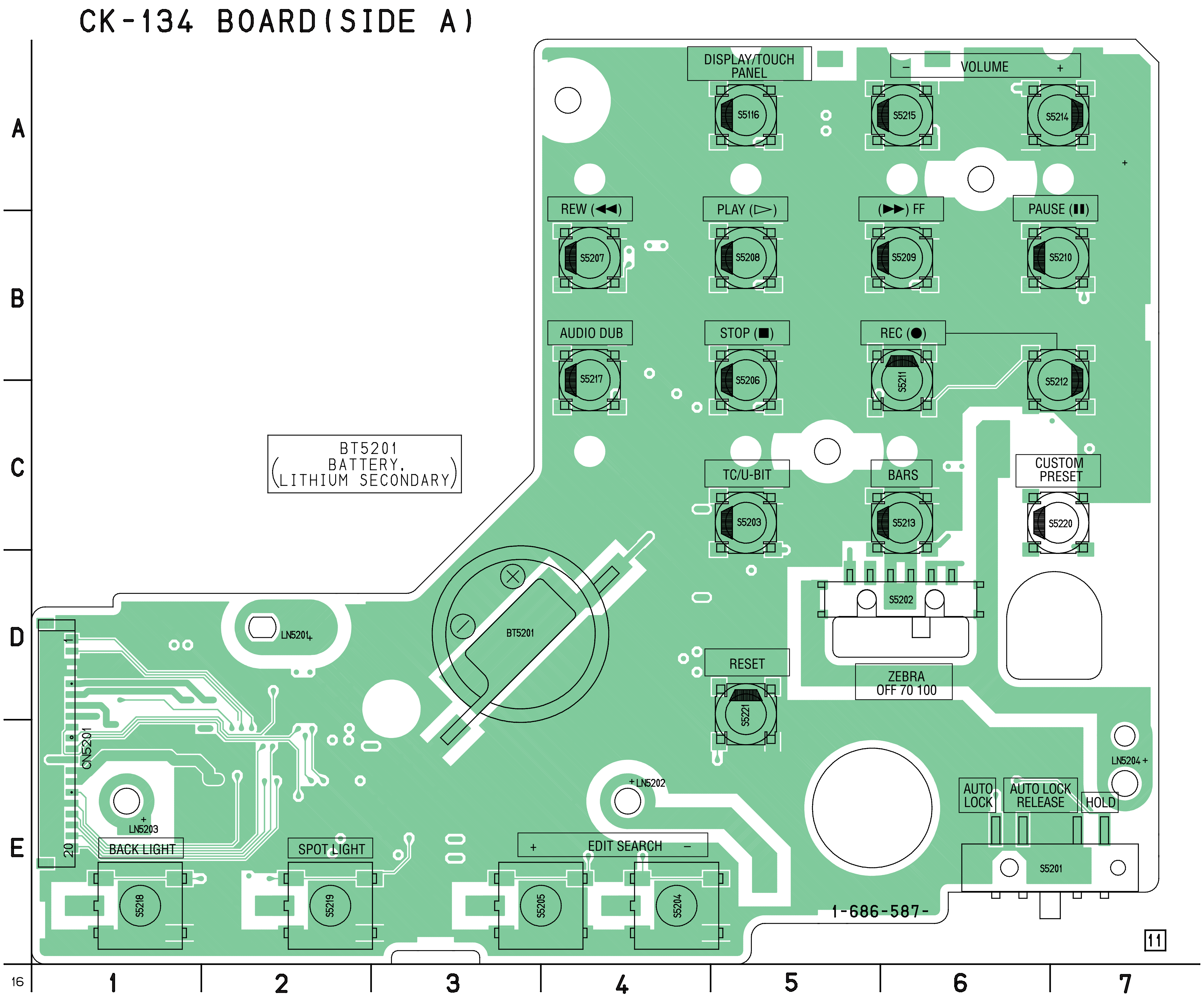
- LF : Uses unleaded solder.

JK-222 BOARD (SIDE B)


(HEADPHONES)
AUDIO/VIDEO
FB403
J403
VDR404
R406
VDR406
FB404
R409
R411
LND460
J404
FB407
VDR408
VDR407
FB406
VDR409
R408
S VIDEO
VDR401
R403
VDR403
J401
R401
VDR402
R402
LND473
DV
CN401
R410
LND459
(USB)
LF402
LF401
LF403
CN402
R404
R407
LND458
D403
LANC
FB401
VDR405
FB405
J402
A
D401
K
K
FB402
LND451
LND452
LND453
LND454
LND455
LND456
LND457
LND462
LND424
LND426
LND428
LND430
LND432
LND434
LND436
LND438
LND440
LND442
LND444
LND446
LND448
LND450
LND425
LND427
LND429
LND431
LND433
LND435
LND437
LND439
LND441
LND443
LND445
LND447
LND449
1
27
LND401
LND403
LND405
LND407
LND409
LND411
LND413
LND415
LND417
LND419
LND422
LND402
LND404
LND406
LND408
LND410
LND412
LND414
LND416
LND418
LND421
1
21
16
1-685-542-
13
A
B
C
D
E
F
G
10
9
8
7
6
5
4
3
2
1

CK-134 (CONTROL SWITCH) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

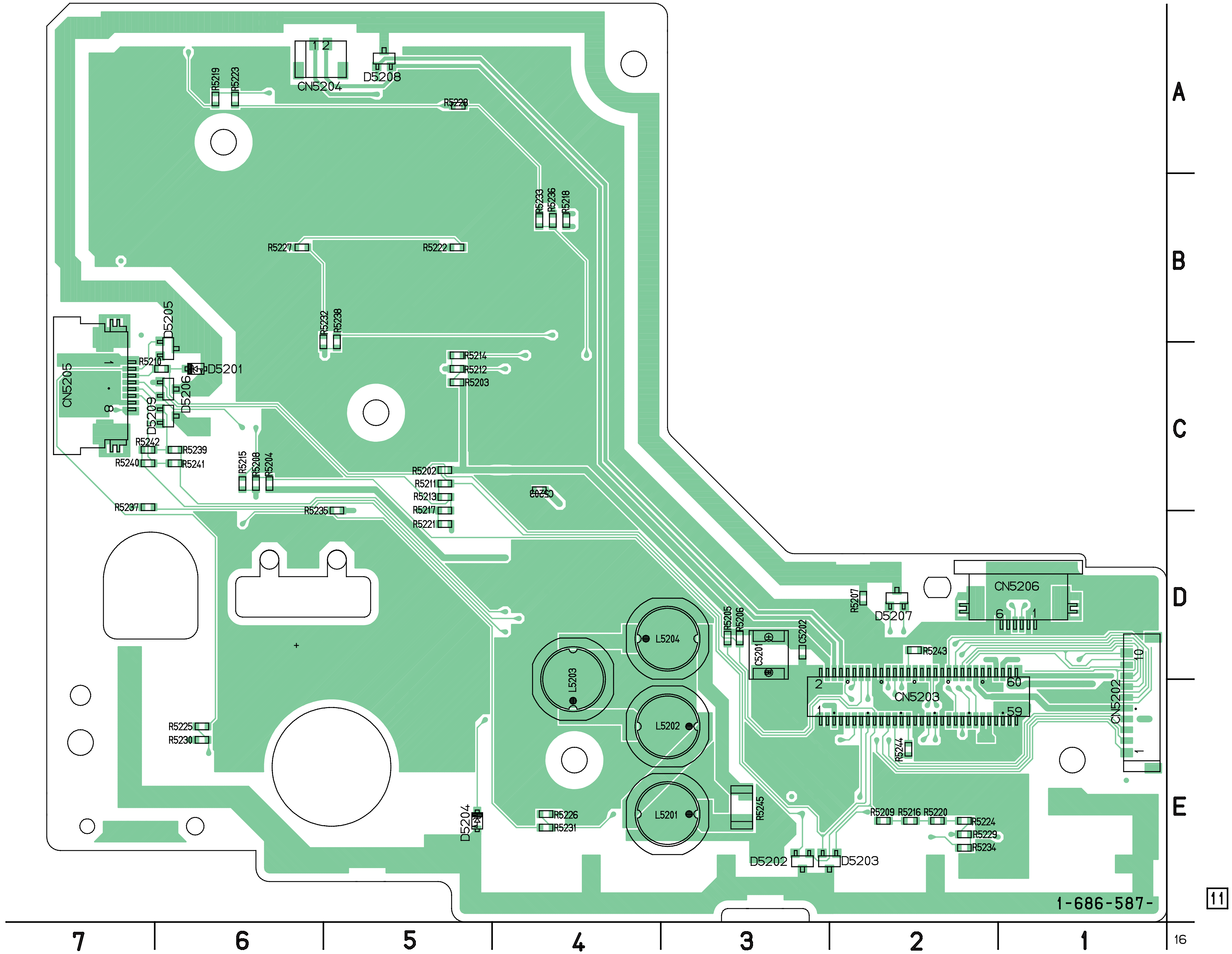

CK-134 BOARD (SIDE A)
A
B
C
D
E
1
2
3
4
5
6
7
16
DISPLAY/TOUCH PANEL
S5116
VOLUME
–
+
S5215
S5214
REW (◀◀)
PLAY (▷)
(▶▶) FF
PAUSE (❚❚)
S5207
S5208
S5209
S5210
AUDIO DUB
STOP (■)
REC (●)
S5217
S5206
S5211
S5212
BT5201
BATTERY,
LITHIUM SECONDARY
TC/U-BIT
BARS
CUSTOM PRESET
S5203
S5213
S5220
S5202
ZEBRA
OFF 70 100
RESET
S5221
LN5201
BT5201
CN5201
1
20
LN5203
+
BACK LIGHT
S5218
SPOT LIGHT
S5219
LN5202
+
EDIT SEARCH
+
–
S5205
S5204
AUTO LOCK
AUTO LOCK RELEASE
HOLD
LN5204
+
S5201
1-686-587-
11

For printed wiring boards
- Refer to page 4-133 for parts location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

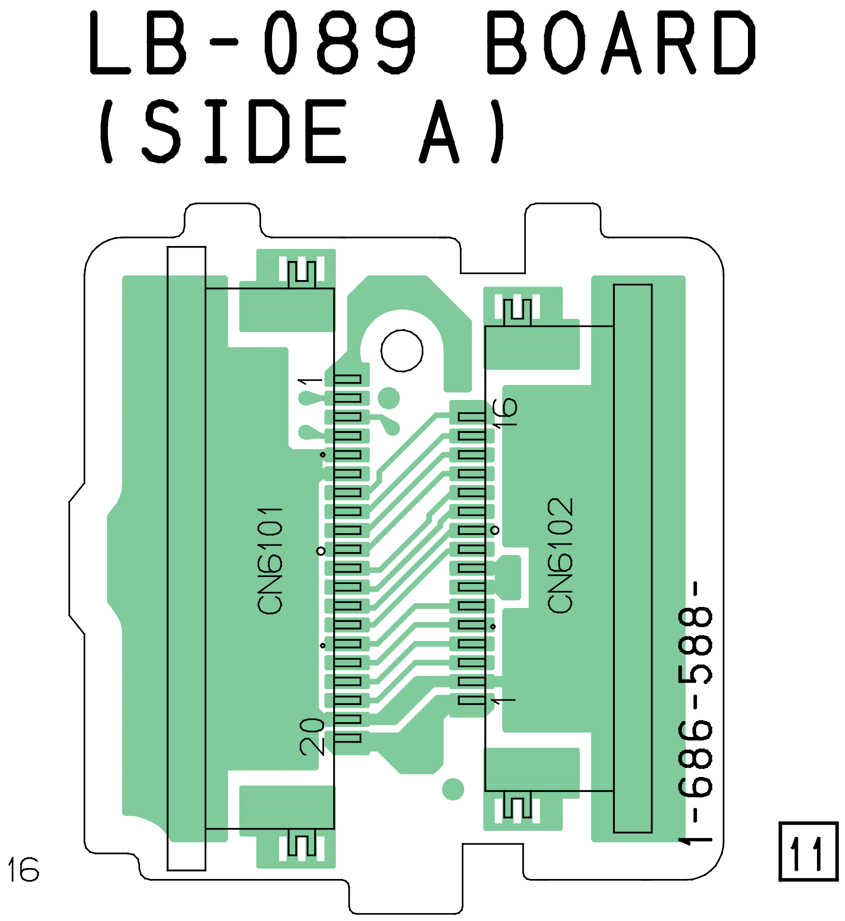
- LF : Uses unleaded solder.

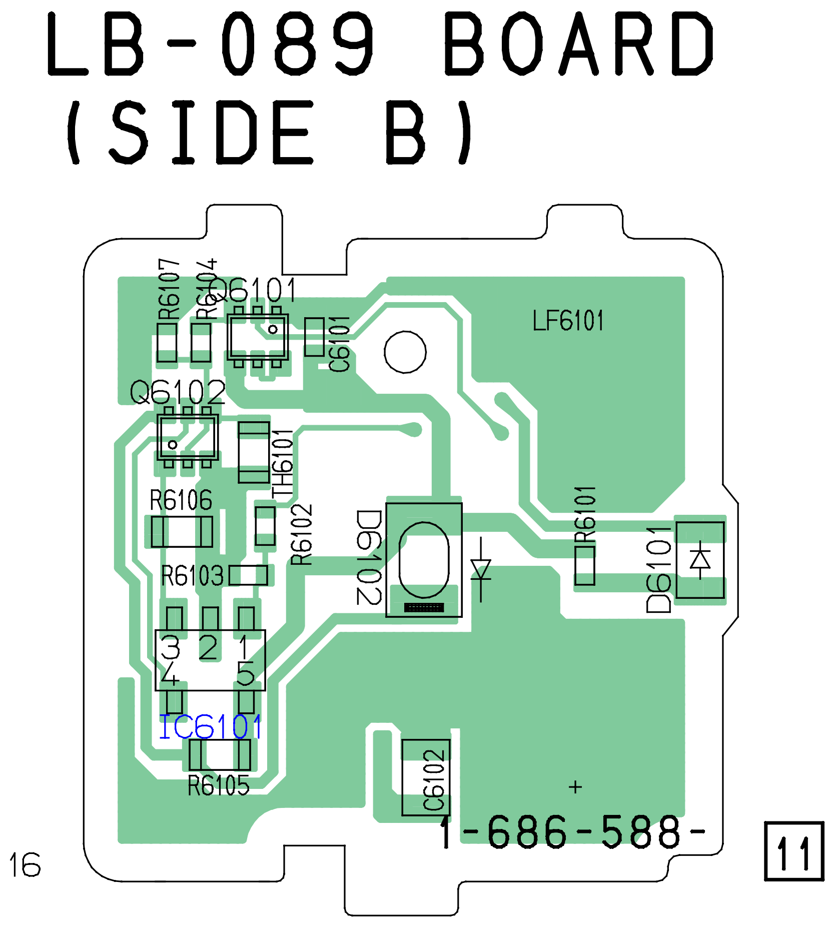
CK-134 BOARD(SIDE B)


CN5204
1 2
D5208
R5219
R5223
R5228
R5233
R5236
R5218
R5227
R5222
R5232
R5238
R5214
R5212
R5203
CN5205
1
8
D5205
R5210
D5201
D5206
D5209
R5242
R5239
R5240
R5241
R5215
R5208
R5204
R5202
R5211
R5213
R5217
R5221
C5203
R5237
R5235
R5225
R5230
D5204
R5226
R5231
L5203
L5204
L5202
L5201
R5205
R5206
C5201
C5202
R5245
R5207
D5207
CN5206
6
1
R5243
CN5203
2
60
1
59
10
CN5202
1
R5244
R5209
R5216
R5220
R5224
R5229
R5234
D5202
D5203
1-686-587-
A
B
C
D
E
7
6
5
4
3
2
1
16
11

LB-089 (EVF, EVF BACKLIGHT) PRINTED WIRING BOARD

- LF : Uses unleaded solder.


LB-089 BOARD
(SIDE A)
1
CN6101
20
16
CN6102
1
1-686-588-
11
16


LB-089 BOARD
(SIDE B)
R6107
R6104
Q6101
C6101
LF6101
Q6102
TH6101
R6106
R6102
D6102
R6101
D6101
R6103
3 2 1
4 5
IC6101
R6105
C6102
+
1-686-588-
11
16

For printed wiring boards

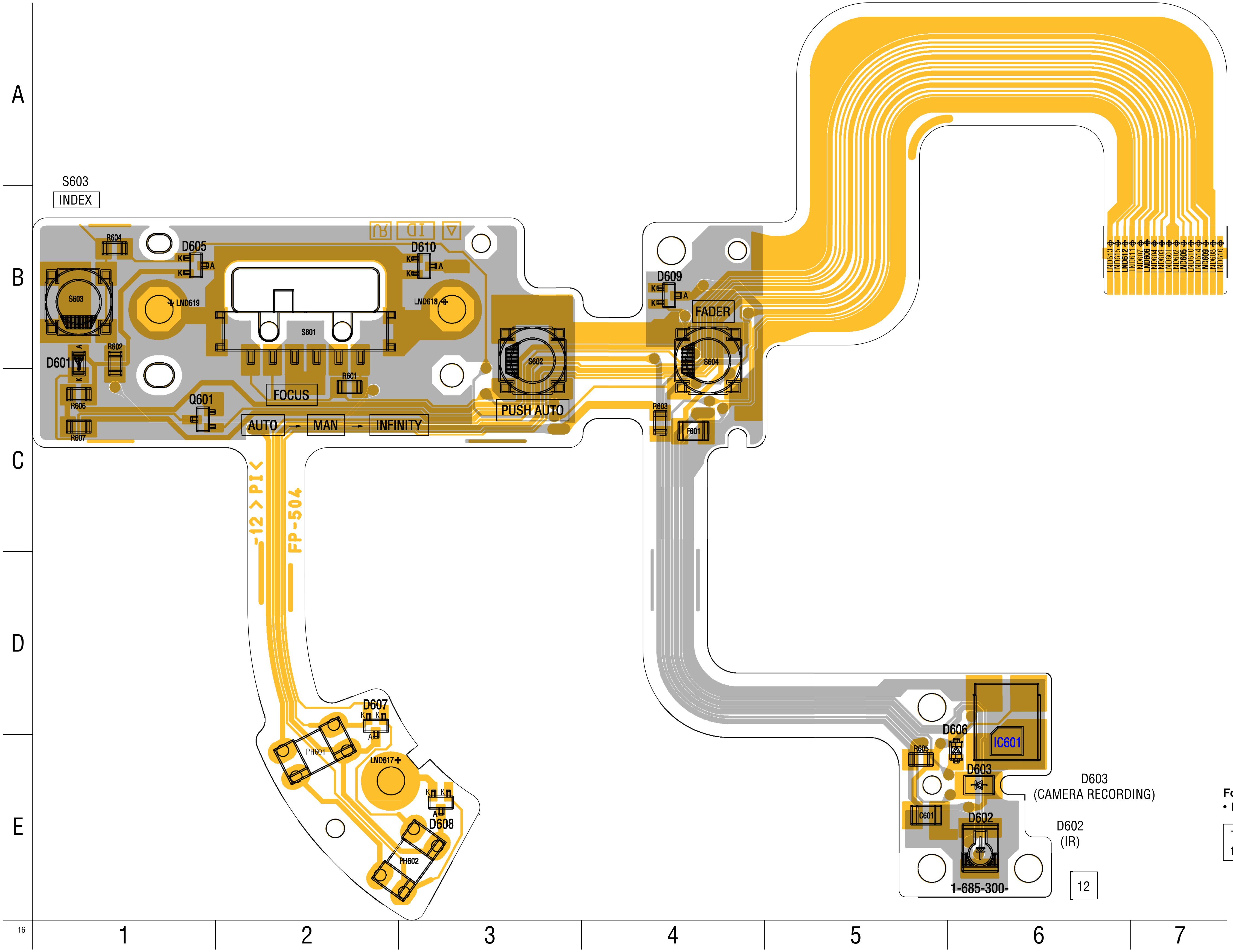
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

FP-504 FLEXIBLE BOARD

- LF : Uses unleaded solder.

FP-504 FLEXIBLE BOARD

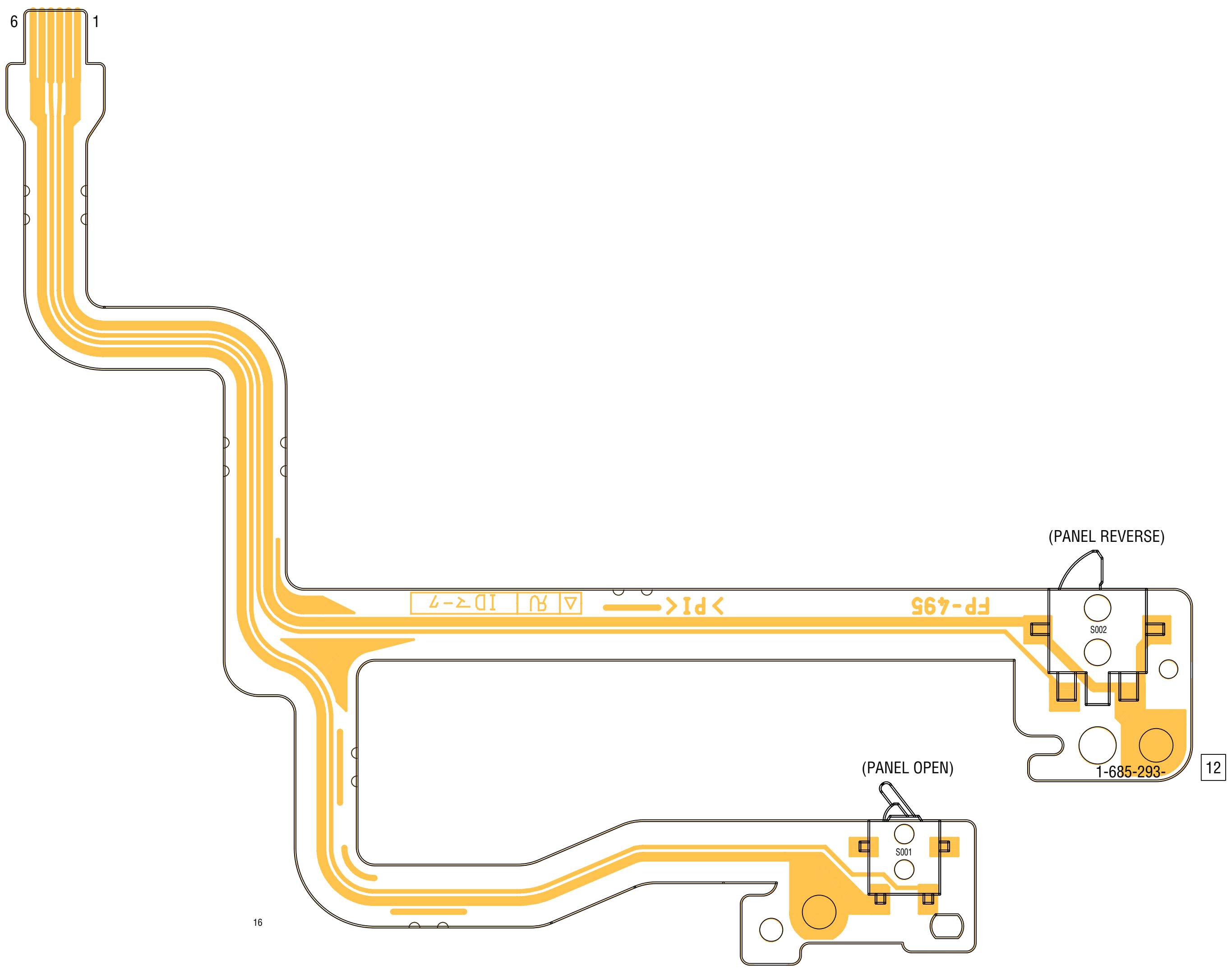

A
B
C
D
E
1
2
3
4
5
6
7
16
S603
INDEX
R604
D605
D610
S603
LND619
S601
LND618
D609
FADER
S602
S604
D601
R602
R606
R607
Q601
FOCUS
R601
AUTO
MAN
INFINITY
PUSH AUTO
R603
F601
-12 > PI <
FP-504
D607
PH601
LND617
D608
PH602
D606
R605
IC601
D603
C601
D602
1-685-300-
D603
(CAMERA RECORDING)
D602
(IR)
12

For printed wiring boards
- Refer to page 4-133 for parts location.

There are a few cases that the part printed on this diagram isn't mounted in this model.

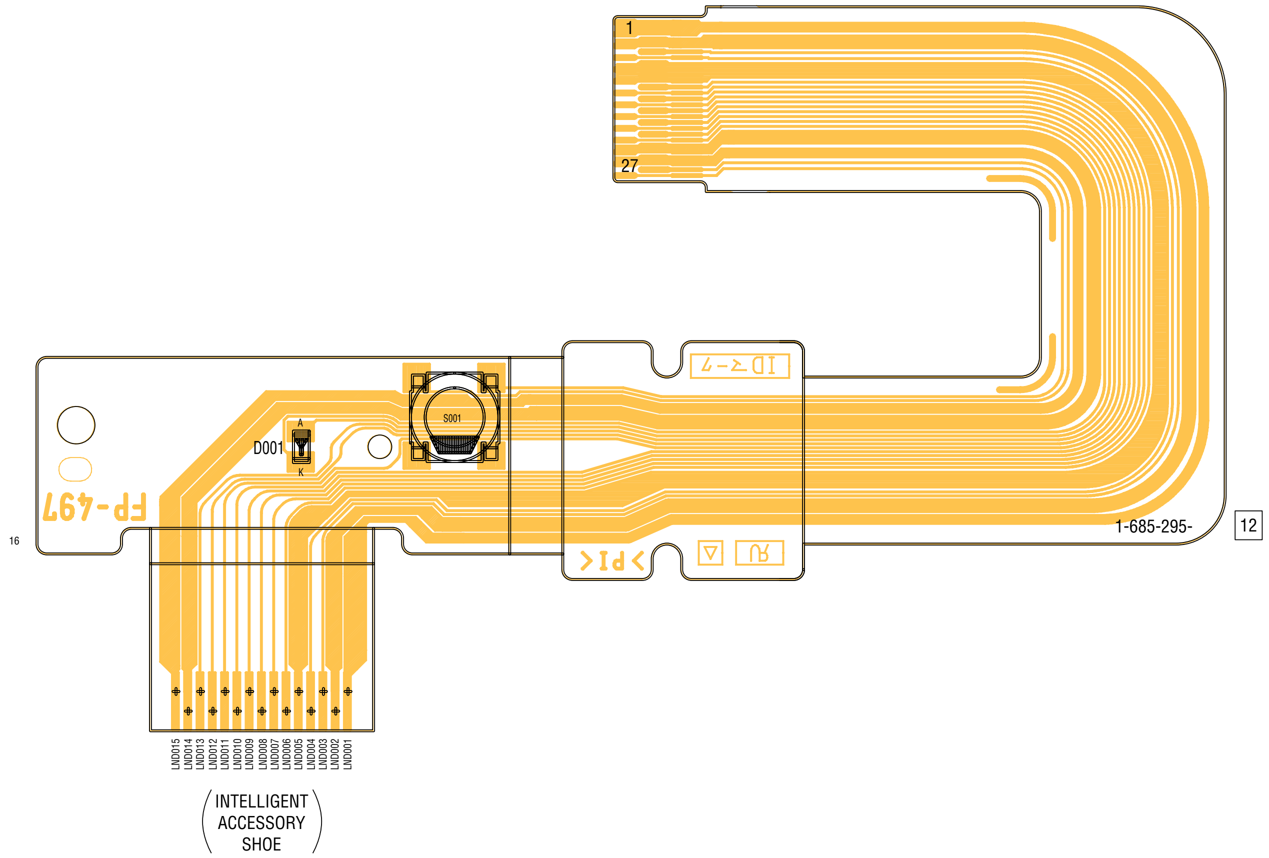
FP-495 FLEXIBLE BOARD

FP-495 FLEXIBLE BOARD

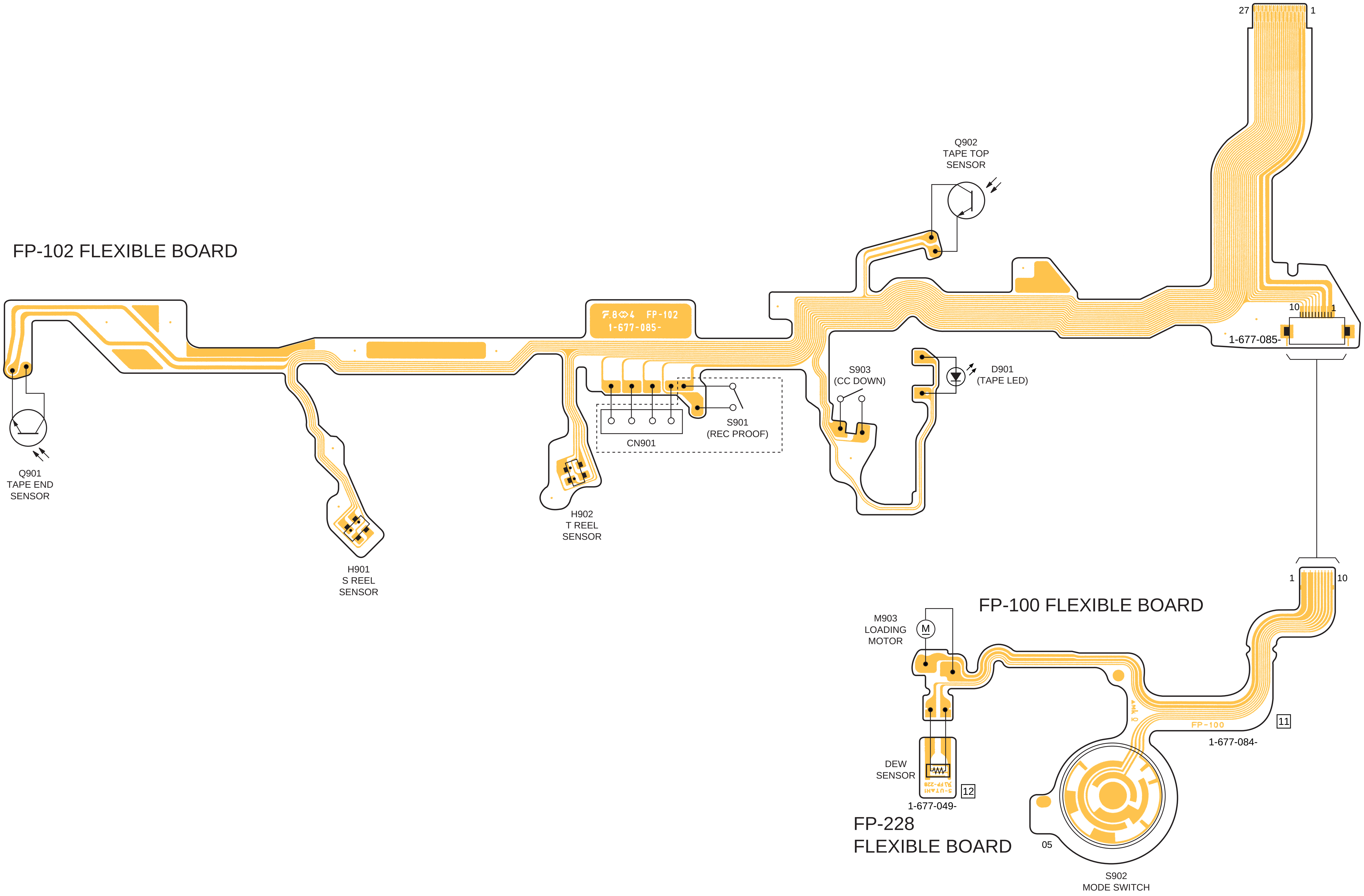

6
1
(PANEL REVERSE)
S002
(PANEL OPEN)
S001
1-685-293-
12
16

FP-497 FLEXIBLE BOARD

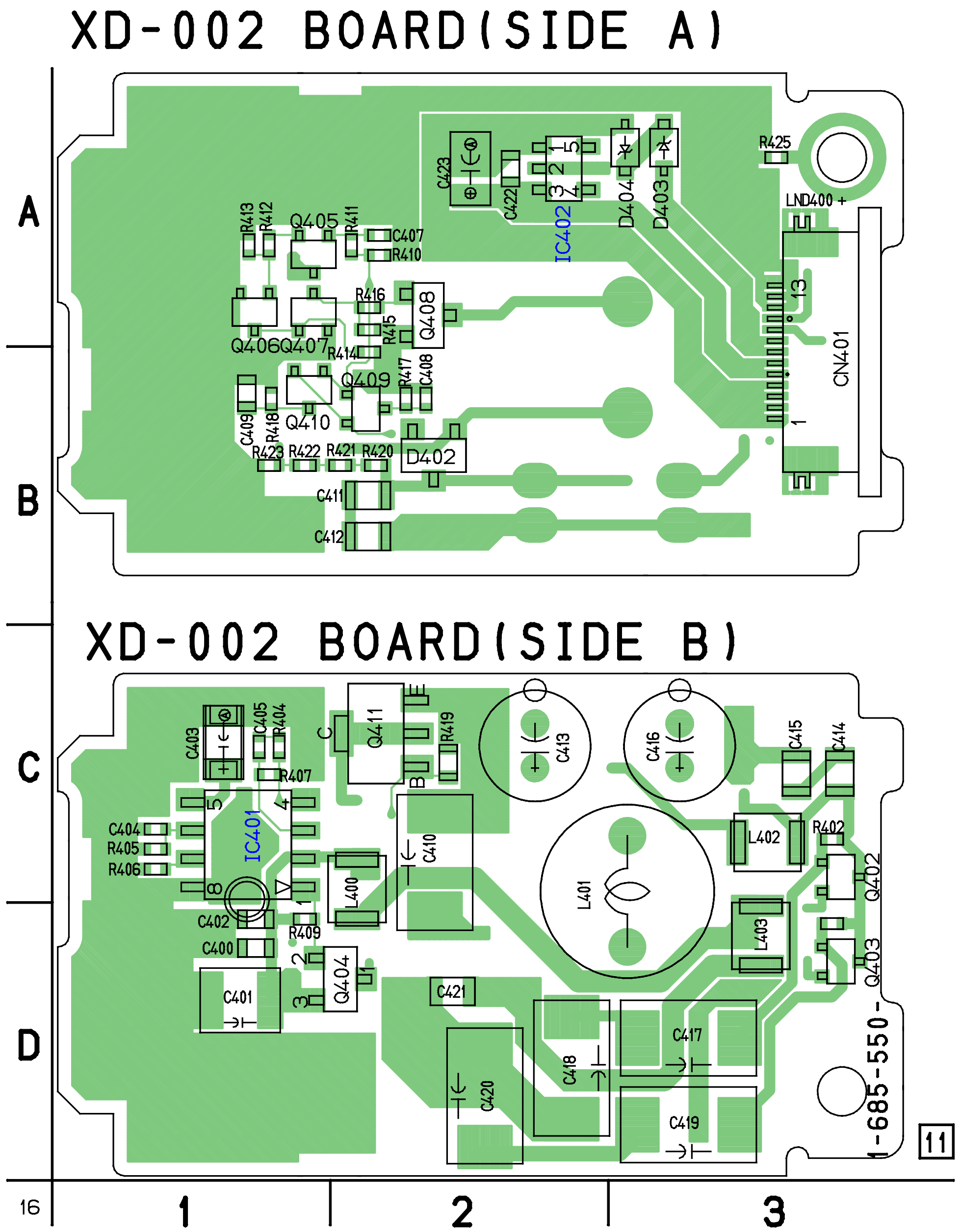
FP-497 FLEXIBLE BOARD

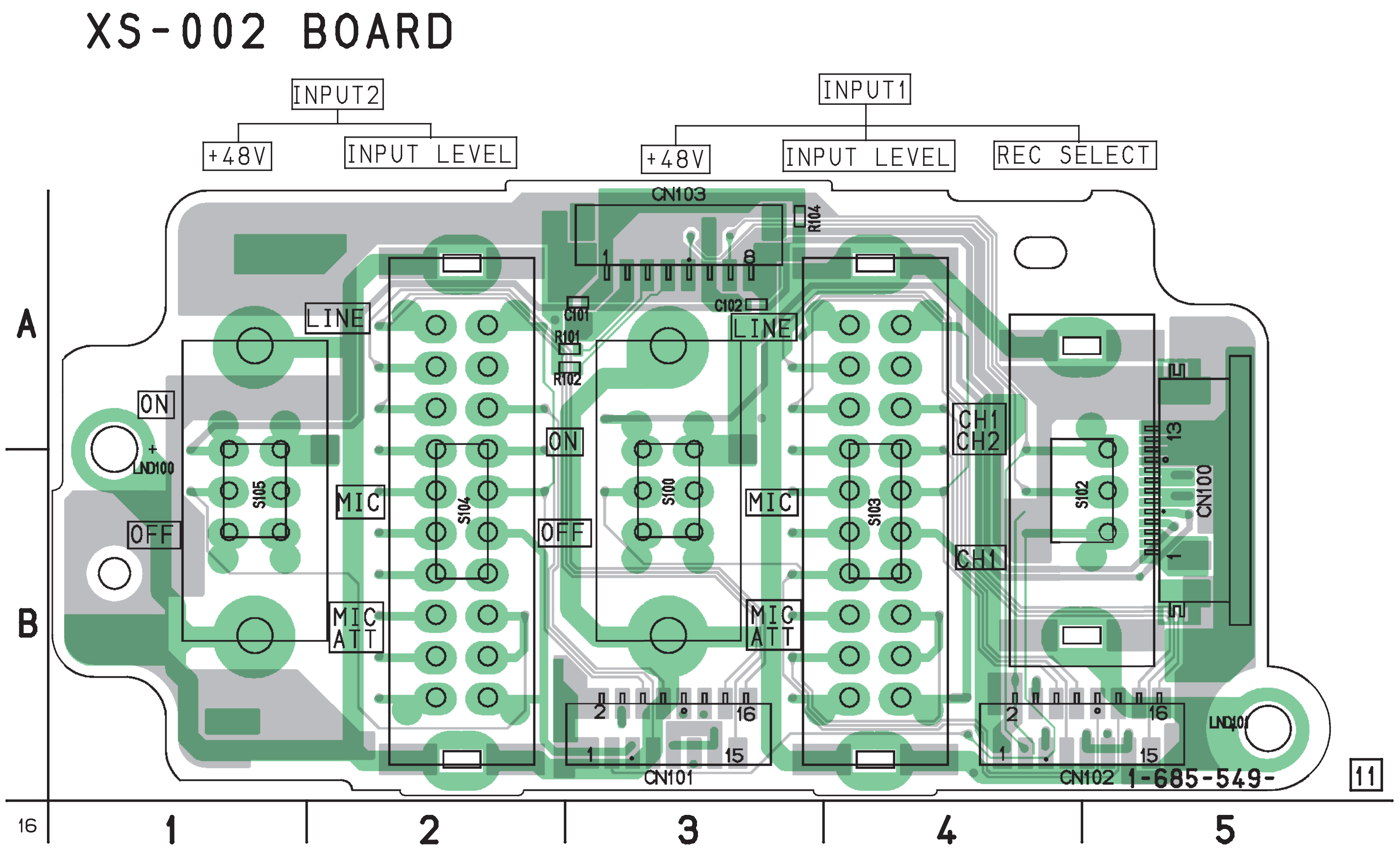

1
27
S001
D001
A
K
1-685-295-
12
16
LND015
LND014
LND013
LND012
LND011
LND010
LND009
LND008
LND007
LND006
LND005
LND004
LND003
LND002
LND001
INTELLIGENT
ACCESSORY
SHOE

FP-100 (MODE SWITCH), FP-228 (DEW SENSOR), FP-102 (TAPE TOP/END SENSOR, S/T REEL) FLEXIBLE BOARDS


FP-102 FLEXIBLE BOARD
27
1
Q902
TAPE TOP
SENSOR
FP-102
1-677-085-
Q901
TAPE END
SENSOR
H901
S REEL
SENSOR
H902
T REEL
SENSOR
CN901
S901
(REC PROOF)
S903
(CC DOWN)
D901
(TAPE LED)
10
1
1-677-085-
12
1
10
FP-100 FLEXIBLE BOARD
M903
LOADING
MOTOR
M
DEW
SENSOR
12
1-677-049-
FP-228
FLEXIBLE BOARD
FP-100
11
1-677-084-
05
S902
MODE SWITCH

XD-002 (DC/DC CONVERTER), XS-002 (MIC SELECT) PRINTED WIRING BOARDS


XD-002 BOARD(SIDE A)
XD-002 BOARD(SIDE B)
A
B
C
D
1
2
3
16
11
IC402
IC401
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q404
Q402
Q403
D402
D403
D404
C407
C408
C409
C411
C412
C413
C414
C415
C416
C417
C418
C419
C420
C421
C422
C423
C400
C401
C402
C403
C404
C405
C410
R404
R405
R406
R407
R409
R410
R411
R412
R413
R414
R415
R416
R417
R418
R419
R420
R421
R422
R423
R425
R402
L400
L401
L402
L403
LND400
CN401
1-685-550-


XS-002 BOARD
INPUT2
INPUT1
+48V
INPUT LEVEL
+48V
INPUT LEVEL
REC SELECT
A
B
1
2
3
4
5
16
11
LINE
ON
OFF
MIC
MIC ATT
LINE
ON
OFF
MIC
MIC ATT
CH1
CH2
CH1
CN100
CN101
CN102
CN103
S100
S102
S103
S104
S105
C101
C102
R101
R102
R104
LND100
LND101
1-685-549-

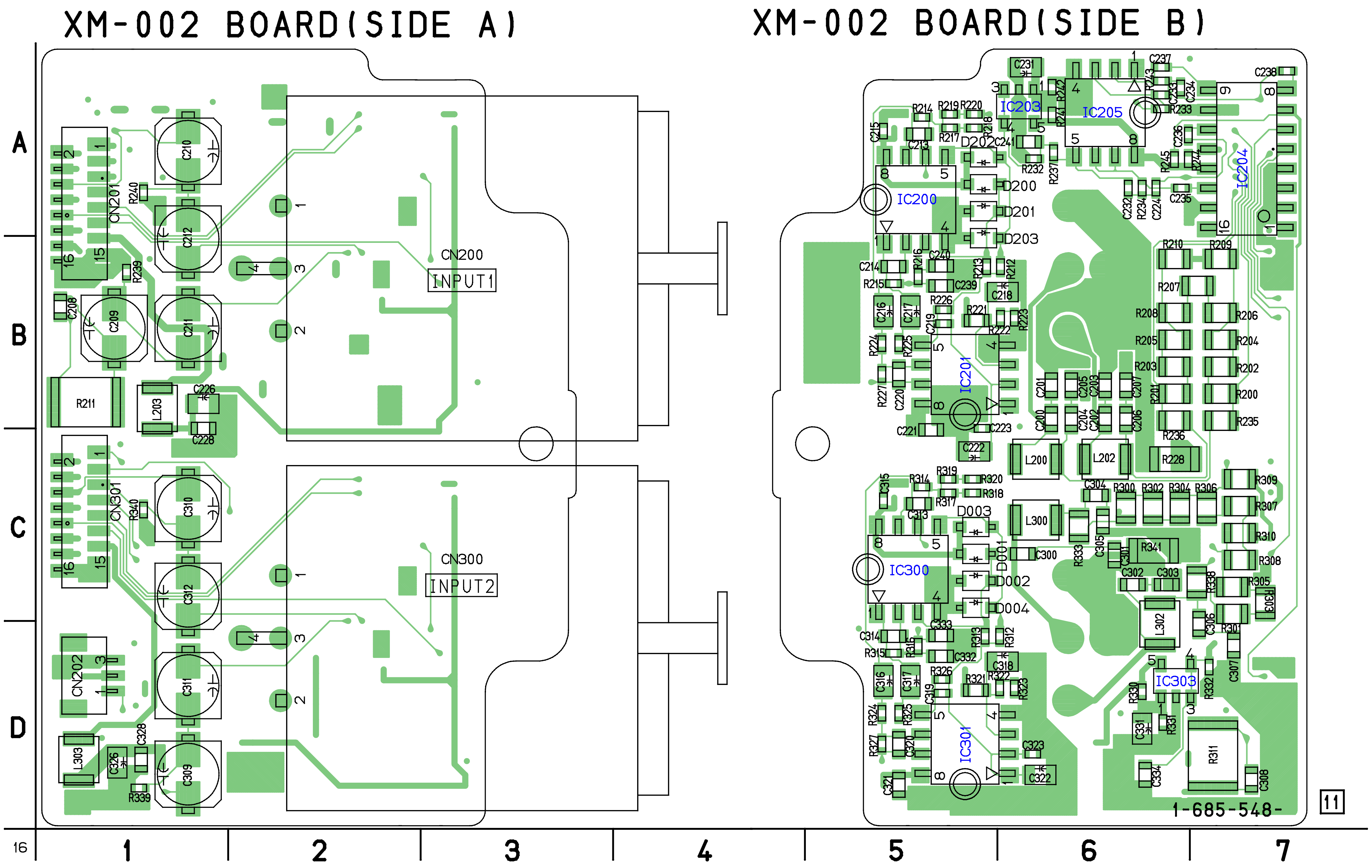
For printed wiring boards
- Refer to page 4-133 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

For printed wiring boards
- Refer to page 4-134 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

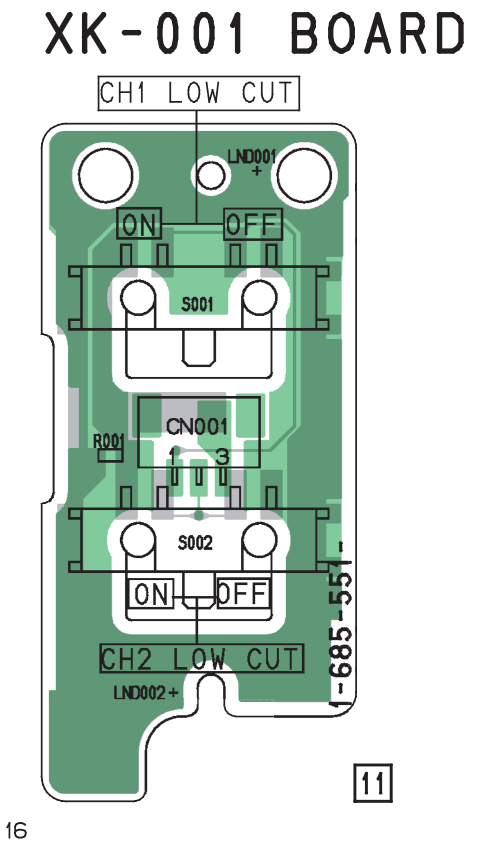
XM-002 (MIC AMP), XK-001 (LOW CUT SW) PRINTED WIRING BOARDS


XM-002 BOARD(SIDE A)
XM-002 BOARD(SIDE B)
A
B
C
D
1
2
3
4
5
6
7
16
CN201
CN301
CN202
CN200
INPUT1
CN300
INPUT2
C210
C212
C211
C219
C208
R240
R239
R211
L203
C226
C228
C310
C312
C311
C309
R340
L303
C326
C328
R339
IC200
IC201
IC203
IC204
IC205
IC300
IC301
IC303
D200
D201
D202
D203
D001
D002
D003
D004
L200
L202
L300
L302
R228
R311
C237
C238
C231
1-685-548-
11

For printed wiring boards

- Refer to page 4-134 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.


XK-001 BOARD
CH1 LOW CUT
LND001
ON
OFF
S001
CN001
R001
1
3
S002
ON
OFF
CH2 LOW CUT
LND002
1-685-551-
11
16

For printed wiring boards

- Refer to page 4-134 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

COVER

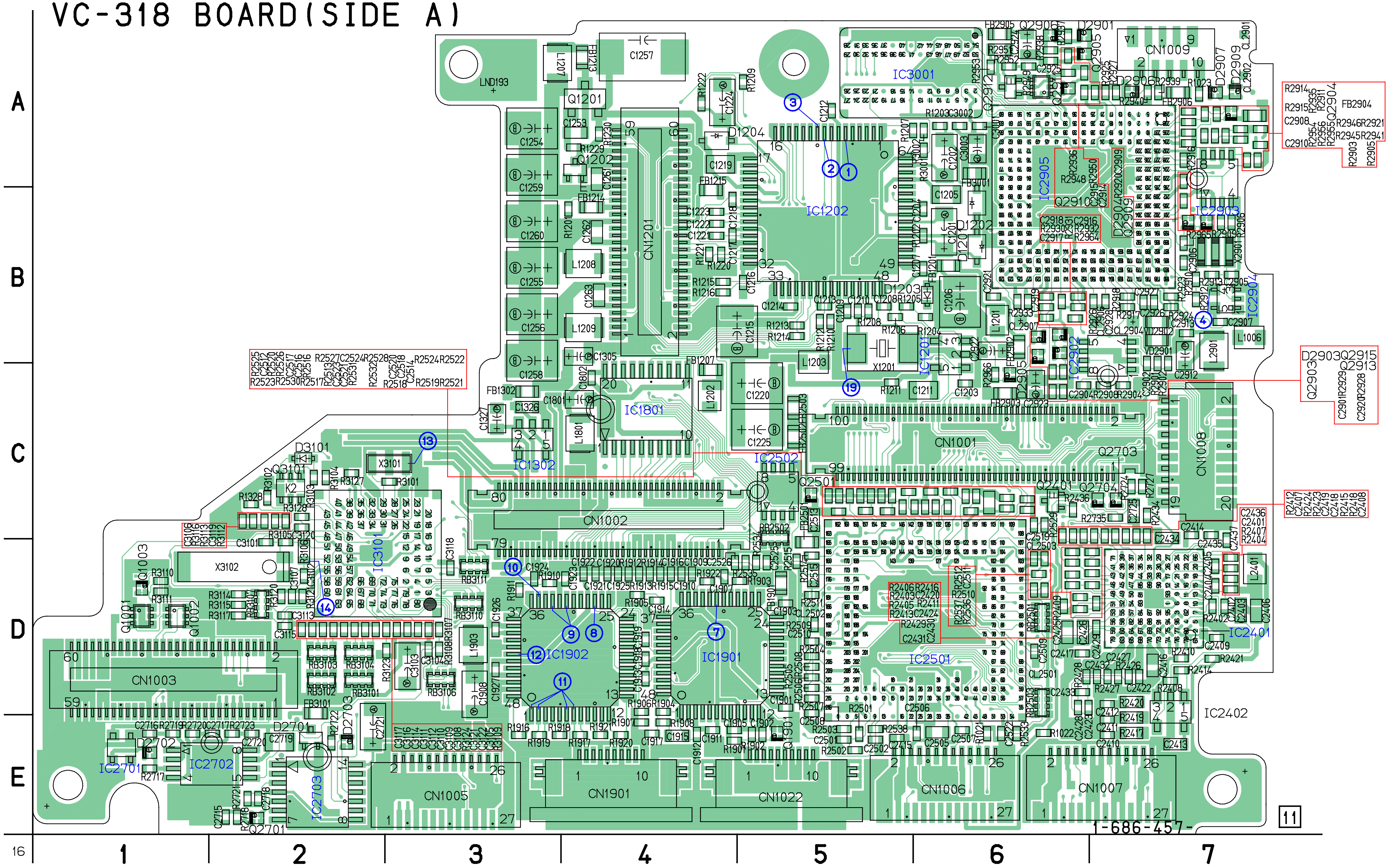
4-2. SCHEMATIC DIAGRAMS | 4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

VC-318 (A/D CONVERTER, TIMING GENERATOR, CAMERA RGB PROCESS, CAMERA PROCESS, MPEG MOVIE/DIGITAL STILL PROCESS, HI CONTROL, DIGITAL STILL CONTROL, FLASH MEMORY, SDRAM, DV SIGNAL PROCESS, DV INTERFACE, REC/PB AMP, USB INTERFACE, VIDEO A/D CONVERTER, DRUM/CAPSTAN/LOADING DRIVE, CAMERA/MECHA CONTROL, HI CONTROL, LANC, RESET, BEEP, AFLD, CONNECTOR, EVR) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

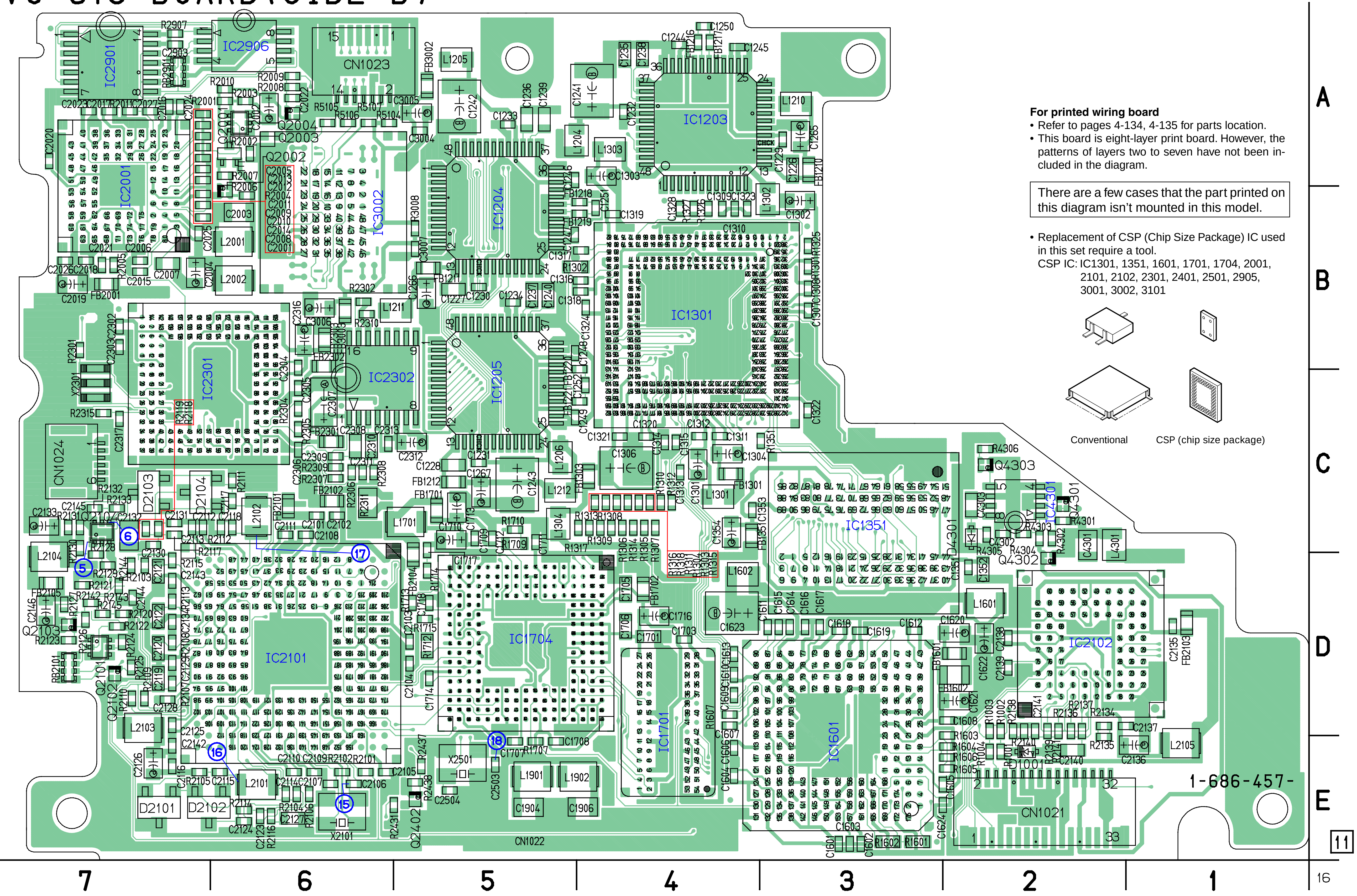
VC-318 BOARD (SIDE A)


A
B
C
D
E
1
2
3
4
5
6
7
IC3001
IC1202
IC2905
IC2903
IC2904
IC2902
IC1201
IC1801
IC1302
IC2502
IC3101
IC1902
IC1901
IC2501
IC2401
IC2402
IC2701
IC2702
IC2703
CN1201
CN1009
CN1001
CN1008
CN1002
CN1003
CN1005
CN1901
CN1022
CN1006
CN1007
X1201
X3101
X3102
LND193
1-686-457-11

COVER
4-2. SCHEMATIC DIAGRAMS
4-3. PRINTED WIRING BOARDS
MOUNTED PARTS LOCATION

- LF : Uses unleaded solder.

VC-318 BOARD(SIDE B)


IC2901
IC2906
CN1023
IC1203
IC2001
IC3002
IC1204
IC1301
IC2301
IC2302
IC1205
IC1351
IC4301
IC2101
IC1704
IC1701
IC1601
IC2102
CN1024
CN1022
CN1021
X2501
X2101
1-686-457-
11
A
B
C
D
E
7
6
5
4
3
2
1
Conventional
CSP (chip size package)

For printed wiring board

- Refer to pages 4-134, 4-135 for parts location.
- This board is eight-layer print board. However, the patterns of layers two to seven have not been included in the diagram.

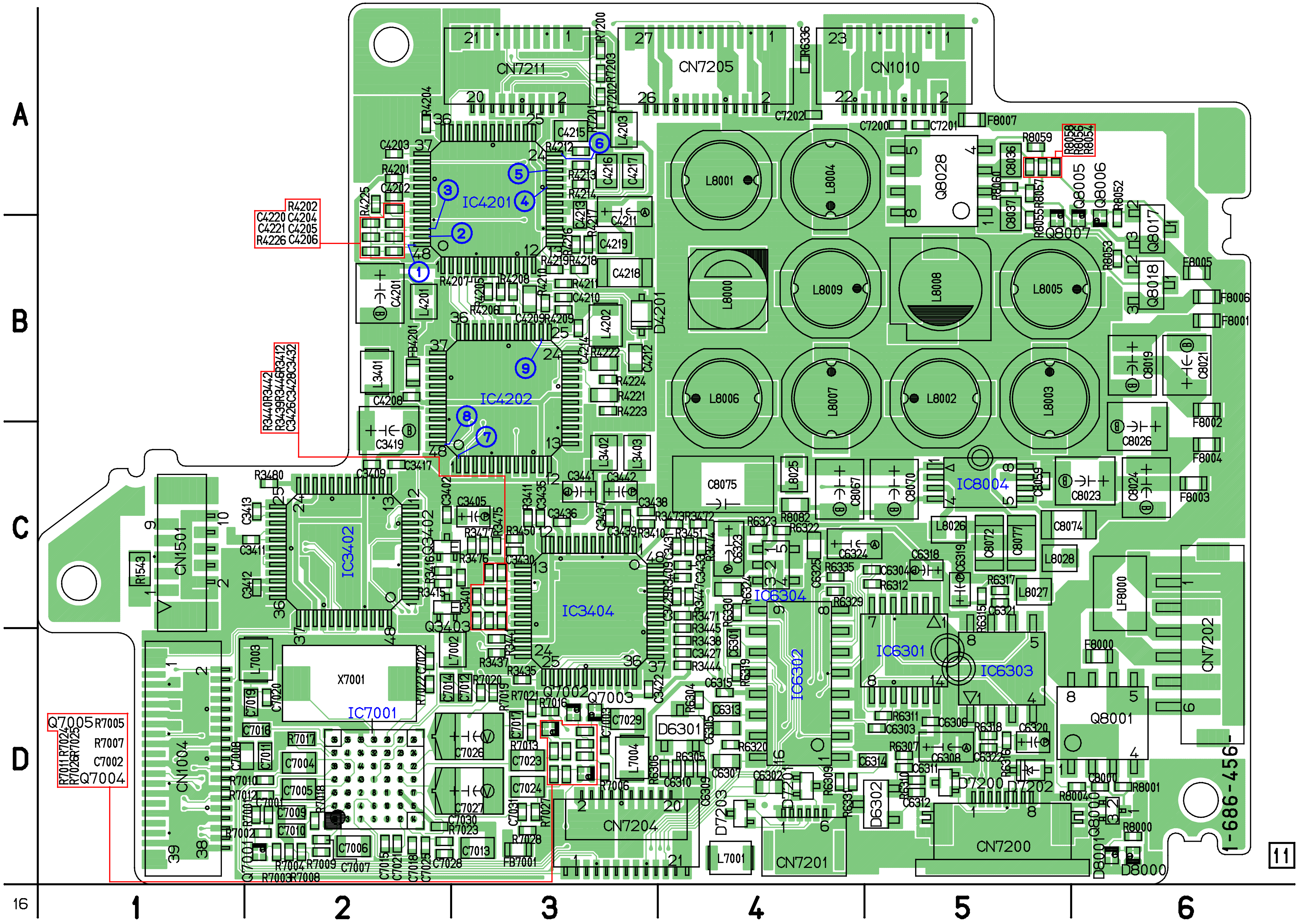
There are a few cases that the part printed on this diagram isn’t mounted in this model.

- Replacement of CSP (Chip Size Package) IC used in this set require a tool.
  CSP IC: IC1301, 1351, 1601, 1701, 1704, 2001, 2101, 2102, 2301, 2401, 2501, 2905, 3001, 3002, 3101

DB-016 (LENS MOTOR DRIVE, VAP DRIVER, MIC VOL, AUDIO PROCESSOR 1, AUDIO PROCESSOR 2, VIDEO IN/OUT, EVF DRIVE, TIMING GENERATOR, CONNECTOR, DC/DC CONTROL) PRINTED WIRING BOARD

- LF : Uses unleaded solder.

DB-016 BOARD (SIDE A)

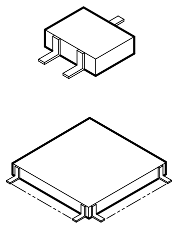

A
B
C
D
1
2
3
4
5
6
16
CN7211
CN7205
CN1010
CN1501
CN1004
CN7204
CN7201
CN7200
CN7202
IC4201
IC4202
IC3402
IC3404
IC6304
IC6301
IC6302
IC6303
IC7001
IC8004
X7001
Q8028
Q8001
Q8005
Q8006
Q8007
Q8017
Q8018
Q3402
Q3403
Q7002
Q7003
Q7004
Q7005
L8001
L8004
L8009
L8008
L8005
L8006
L8007
L8002
L8003
LF8000
D4201
D6301
D6302
D7200
D7202
D7203
D8000
D8001
1-686-456-
11
①
②
③
④
⑤
⑥
⑦
⑧
⑨
R4202
C4220 C4204
C4221 C4205
R4226 C4206
R3440 R3442
R3439 R3446 R3412
C3426 C3428 C3432
Q7005 R7005
R7011 R7024
R7026 R7025
R7007
C7002
Q7004

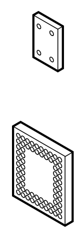
For printed wiring board

- Refer to page 4-136, 4-137 for parts location.
- This board is eight-layer print board. However, the patterns of layers two to seven have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

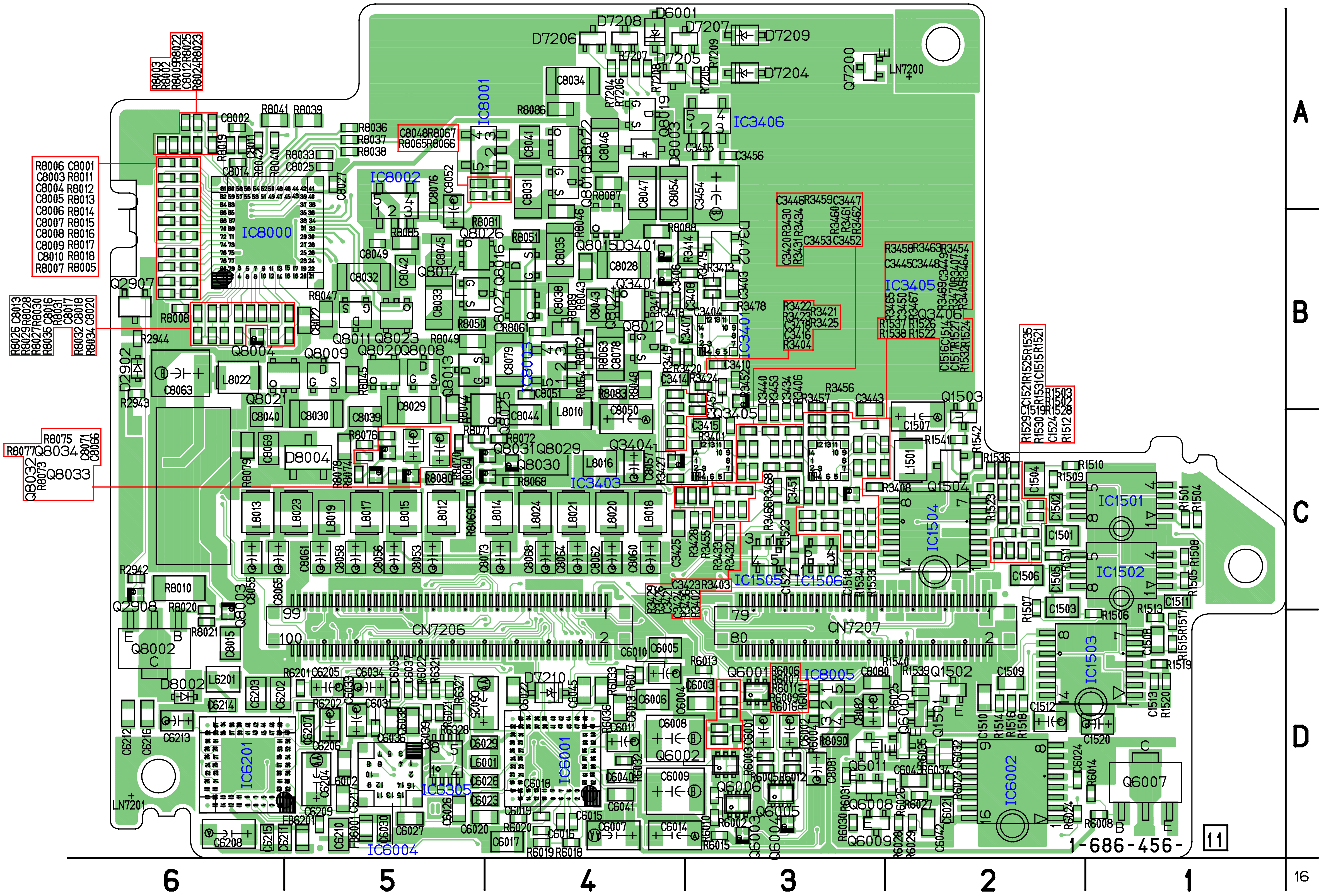
- Replacement of CSP (Chip Size Package) IC used in this set require a tool.
  CSP IC: IC3401, 3403, 3405, 6001, 6004, 6201, 7001, 8000


Conventional


CSP (chip size package)

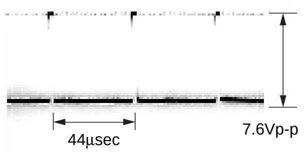
- LF : Uses unleaded solder.

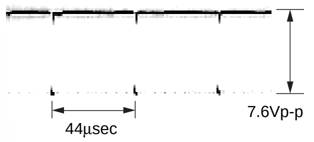
DB-016 BOARD(SIDE B)

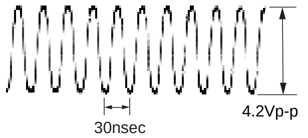

A
B
C
D
6
5
4
3
2
1
16
IC8000
IC8001
IC8002
IC8003
IC8005
IC3401
IC3403
IC3405
IC3406
IC1501
IC1502
IC1503
IC1504
IC1505
IC1506
IC6001
IC6002
IC6004
IC6201
IC6305
CN7206
CN7207
D8004
Q8002
Q6007
1-686-456-11

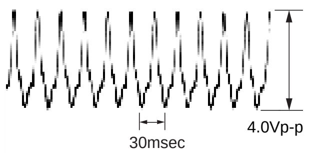
4-4. WAVEFORMS

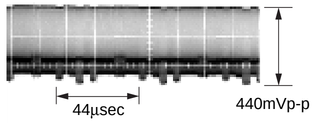
CD-389 BOARD

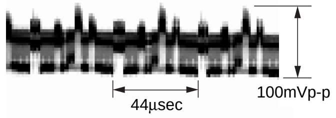

① IC105 ①,④ REC

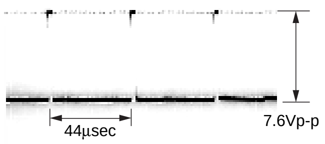

② IC105 ②,③ REC

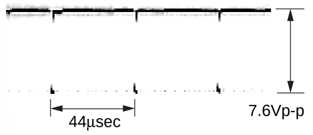

③ IC105 ⑪,⑫ REC

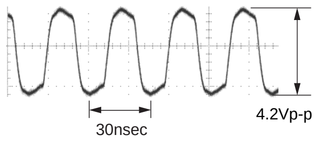

④ IC105 ⑩ REC

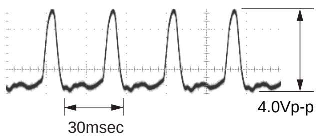

⑤ IC105 ⑧ REC

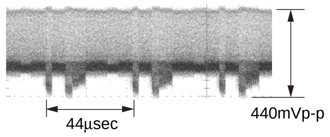

⑥ IC102 ⑤ REC

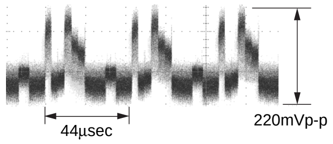

⑦ IC100 ①,④ REC

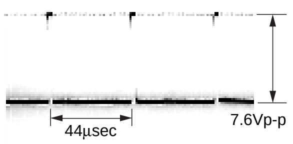

⑧ IC100 ②,③ REC

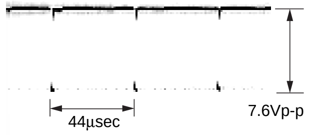

⑨ IC100 ⑪,⑫ REC

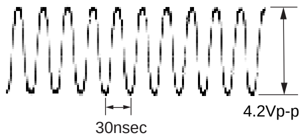

⑩ IC100 ⑩ REC

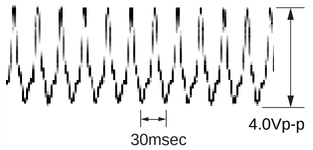

⑪ IC100 ⑧ REC

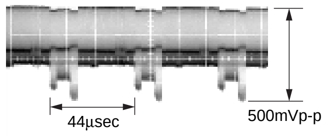

⑫ IC103 ⑤ REC

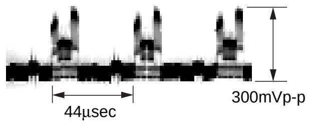

⑬ IC101 ①,④ REC


⑭ IC101 ②,③ REC

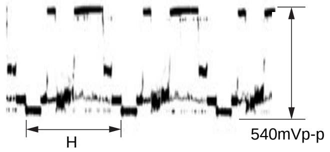

⑮ IC101 ⑪,⑫ REC

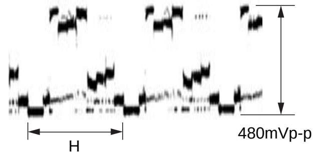

⑯ IC101 ⑩ REC

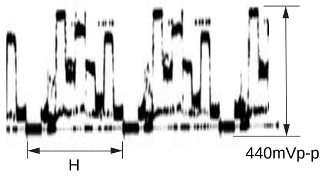

⑰ IC101 ⑧ REC

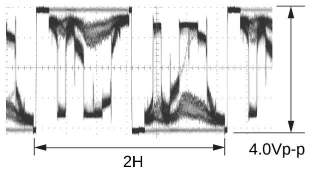

⑱ IC104 ⑤ REC

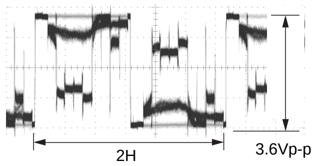
PD-191 BOARD

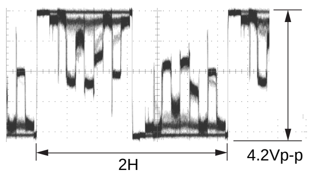

① IC5701 ㊽ REC/PB

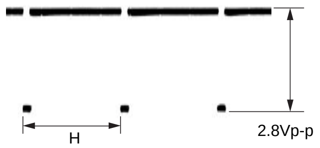

② IC5701 ㊼ REC/PB

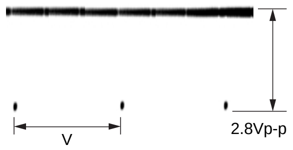

③ IC5701 ㊻ REC/PB

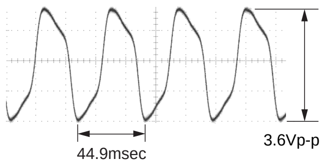

④ IC5701 ⑳ REC/PB


⑤ IC5701 ㉒ REC/PB


⑥ IC5701 ㉔ REC/PB

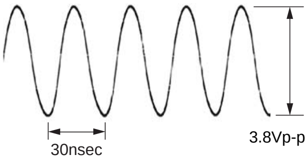

⑦ IC5702 ① REC/PB


⑧ IC5702 ㊽ REC/PB

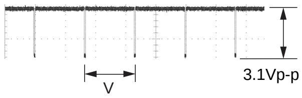

⑨ IC5702 ㉖ REC/PB

VC-318 BOARD

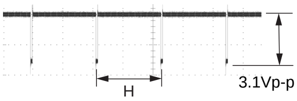
① IC1202 ⑥ REC/PB



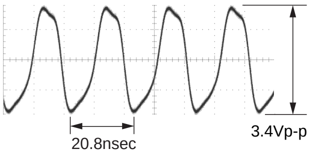
② IC1202 ⑨ REC/PB



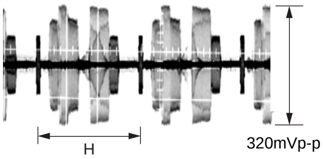
③ IC1202 ⑩ REC/PB



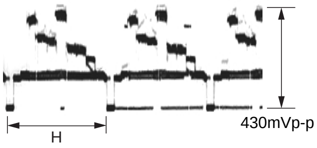
④ IC2904 ④ REC/PB



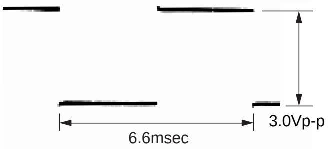
⑤ Q2104 ① REC/PB
(S VIDEO CONNECT)



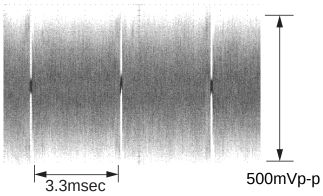
⑥ Q2104 ④ REC/PB
(S VIDEO CONNECT)



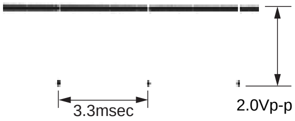
⑦ IC1901 ㉛ REC/PB



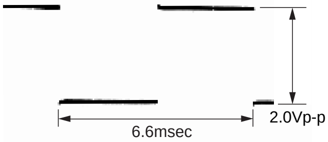
⑧ IC1902 ㉗ PB



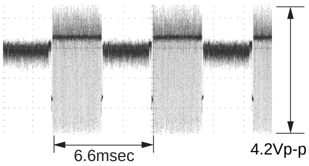
⑨ IC1902 ㉛,㉝ REC



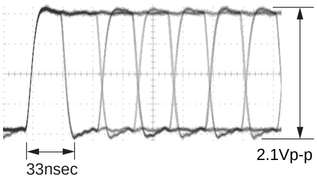
⑩ IC1902 ㉟ REC/PB



⑪ IC1902 ①,②,⑥,⑦ REC

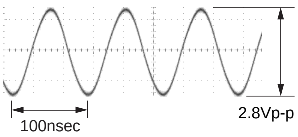


⑫ IC1902 ㊷ REC

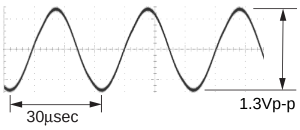


VC-318 BOARD

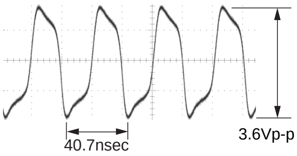
⑬ X3101 (IC3101 ㉘) REC/PB



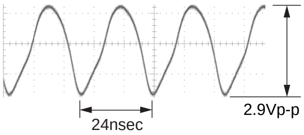
⑭ X3102 (IC3101 (52)) REC/PB



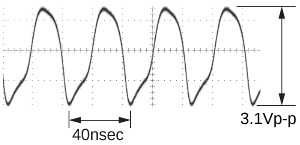
⑮ X2101 (IC2101 (139)) REC/PB



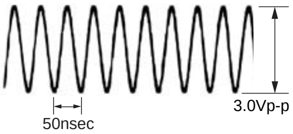
⑯ IC2101 (113) (L2101) REC/PB



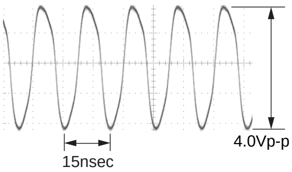
⑰ IC2101 ㊺ (L2102) REC/PB



⑱ X2501 (IC2501 ①) REC/PB



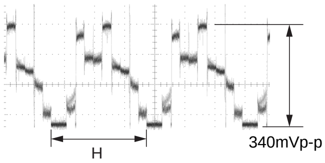
⑲ X1202 (IC1202 ㊻)



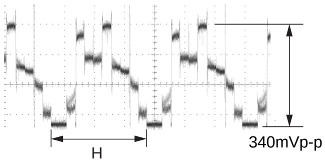
COVER
DB-016 BOARD SIDE A
DB-016 BOARD SIDE B

DB-016 BOARD

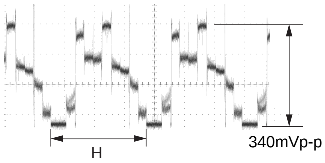
① IC4201 ㊽ EVF



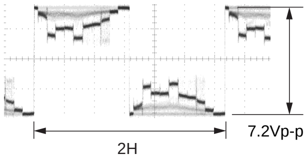
② IC4201 ㊼ EVF



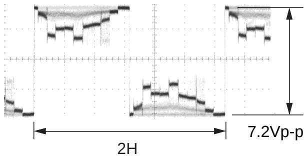
③ IC4201 ㊻ EVF



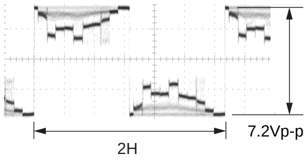
④ IC4201 ⑳ EVF



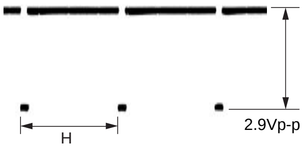
⑤ IC4201 ㉒ EVF



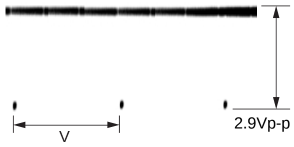
⑥ IC4201 ㉔ EVF



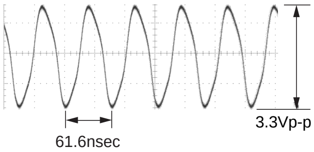
⑦ IC4202 ① EVF



⑧ IC4202 ㊽ EVF



⑨ IC4202 ㉖ EVF



4-5. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

SE-132 BOARD

C4001	A-2
C4002	A-3
* C4003	A-2
* C4004	A-2
* C4005	A-2
* C4006	A-2
* C4007	A-2
* C4008	A-2
C4009	B-2
C4010	A-2
C4011	B-2
C4012	A-2
C4014	A-1
* C4015	A-1
* CN4005	A-1
* IC4001	A-2
L4001	A-1
Q4001	A-1
Q4002	A-1
* R4001	A-2
* R4002	A-2
* R4003	A-2
* R4004	A-2
* R4005	A-2
* R4006	A-2
* R4007	A-1
* R4009	A-1
R4010	A-1
R4011	A-1
SE4001	A-2
SE4002	A-3

CD-389 BOARD

C102	D-4
C103	D-6
C104	C-1
C105	C-1
C106	D-3
C107	C-6
C108	C-1
C109	C-4
C110	C-6
C111	C-6
C112	C-4
C113	D-3
C114	C-7
C115	C-4
C116	C-4
C117	C-6
C118	C-6
C119	D-1
C120	D-1
C121	D-1
C122	D-2
C123	D-4
C124	D-7
C125	D-2
C126	D-4
C127	D-6
C128	D-4
C129	D-6
C130	C-1
C131	D-2
* CN100	A-4
IC100	D-4
IC101	D-6
IC102	D-1
IC103	D-4
IC104	D-6
IC105	D-1
L100	C-1
L101	D-3
L102	C-6
L103	D-4
L104	D-6
L105	D-2
Q100	C-3
Q101	C-6
Q102	D-1
R100	D-4
R101	D-6
R102	C-1
R103	D-1
R104	C-3
R105	C-6
R106	D-1
R107	C-4
R108	C-7
R109	D-1
R110	C-4
R111	C-6

MA-425 BOARD

* C5901	A-2
* C5902	A-1
* C5903	B-1
* C5904	A-4
* C5905	A-2
* C5906	B-2
* C5907	A-1
* C5908	A-2
* C5909	A-2
* C5910	A-2
* C5911	A-3
* C5912	A-2
* C5913	A-2
* C5914	A-2
* C5915	A-2
* C5916	A-3
* C5917	B-2
* C5918	B-1
* C5919	B-1
* C5920	A-2
* C5921	B-2
* C5922	B-2
* C5923	B-1
* C5924	B-2
* C5925	B-3
* C5926	B-3
* C5927	B-1
* C5928	B-1
* C5929	B-1
* C5930	B-2
* C5931	B-3
C5932	B-3
C5933	B-2
C5934	B-3
* C5935	B-2
* C5936	B-2
C5937	B-2
* C5938	B-1
* C5939	B-1
* C5940	B-1
* C5941	B-1
* C5942	B-1
* C5943	B-3
* C5944	A-3
* C5945	A-2
* CN5901	A-3
* CN5902	A-2
* CN5903	B-1
* CN5904	C-1
* CN5905	B-4
CN5906	B-3
* D5901	B-1
* D5902	B-1
* FB5901	B-1
* FB5902	A-1
* IC5901	B-2
IC5902	B-4
* J5901	A-1
* L5901	B-2
Q5901	B-3
Q5902	B-3
Q5903	B-3
* Q5904	B-3
* Q5905	B-3
* Q5906	B-3
* R5901	A-1
* R5902	A-4
* R5903	A-1
* R5904	A-1
* R5905	A-2
* R5906	A-2
* R5907	B-1
* R5908	A-2
* R5909	B-3
* R5910	B-3
* R5911	B-3
* R5912	B-1
R5913	B-3
R5914	B-3
R5915	B-3
* R5916	B-2
* R5917	B-2
* R5918	B-1
* R5919	B-2
* R5920	B-3
* R5921	B-2
* R5922	B-1
* R5923	B-1
* R5924	B-3
* R5925	B-3
R5926	B-4
* R5927	B-1
* R5928	B-2
R5929	B-4
R5930	B-4
R5931	B-2
R5932	B-4
R5933	B-2
R5934	B-2
R5935	B-2
R5936	B-4
R5937	B-4
* R5938	B-1
R5939	B-4
R5940	B-4
* R5941	B-1
* R5942	B-1
* R5943	B-1
R5944	B-3
R5945	B-3
R5946	B-3
R5947	B-3
R5948	B-3
R5949	B-3
R5950	B-3
* R5951	B-3
* R5952	B-3
* R5953	B-3
* R5954	B-3
* VDR591	A-1
* VDR592	B-1

PD-191 BOARD

C5701	A-4
C5702	A-4
C5703	C-3
C5704	A-3
C5705	A-3
C5706	A-3
C5707	B-3
C5708	B-3
C5709	B-3
C5710	B-4
C5711	B-4
C5712	B-4
C5713	B-3
C5714	B-3
C5715	B-4
C5716	C-3
C5717	B-2
C5718	C-2
C5719	B-4
C5720	B-3
C5721	B-3
C5722	C-3
C5723	C-1
C5724	C-1
C5726	B-2
C5727	B-2
C5801	B-4
C5802	C-2
C5803	C-2
C5804	A-4
C5805	C-3
C5806	C-3
C5807	C-1
C5808	C-3
CN5701	B-1
CN5802	A-2
CN5803	C-1
CN5804	C-4
CN5805	C-2
CN5806	A-4
D5701	C-3
D5702	C-2
IC5701	B-4
IC5702	B-2
IC5801	C-4
L5701	A-4
L5702	B-3
L5703	B-4
L5704	C-3
L5705	B-2
L5801	C-2
L5802	C-3
Q5701	B-3
Q5702	B-3
Q5801	C-2
Q5802	C-3
R5701	B-4
R5702	A-4
R5703	A-4
R5705	C-3
R5706	B-3
R5707	B-4
R5708	B-3
R5709	B-3
R5710	B-3
R5711	B-3
R5712	B-3
R5713	B-3
R5714	B-3
R5717	B-2
R5719	B-2
R5721	C-3
R5722	B-3
R5727	B-2
R5732	B-2
R5736	B-2
R5737	C-2
R5801	B-4
R5802	B-4
R5803	C-3
R5804	C-3
R5805	A-4
R5806	A-4

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

JK-222 BOARD

* CN401	C-6
* CN402	B-3
* D401	C-3
D402	B-3
* FB401	C-3
* FB402	C-3
* FB403	A-3
* FB404	A-2
* FB405	C-3
* FB406	A-1
* FB407	A-1
* J401	B-6
* J402	C-3
* J403	A-2
* J404	A-1
* LF401	A-3
* LF402	A-3
* R401	B-6
* R402	B-5
* R403	B-6
* R404	B-3
* R406	A-2
* R407	B-3
* R408	B-1
* R409	A-2
* R410	C-6
* R411	A-2
* VDR401	B-5
* VDR402	B-6
* VDR403	B-6
* VDR404	A-2
* VDR405	C-3
* VDR406	A-2
* VDR407	A-1
* VDR408	A-1
* VDR409	A-1

CK-134 BOARD

BT5201	D-3
* C5201	D-3
* C5202	D-3
* C5203	C-4
CN5201	E-1
* CN5202	E-1
* CN5203	E-2
* CN5204	A-6
* CN5205	C-7
* CN5206	D-1
* D5201	C-6
* D5202	E-3
* D5203	E-2
* D5204	E-5
* D5205	C-6
* D5206	C-6
* D5207	D-2
* D5208	A-5
* D5209	C-6
* L5201	E-3
* L5202	E-3
* L5203	E-4
* L5204	D-3
* R5202	C-5
* R5203	C-5
* R5204	C-6
* R5205	D-3
* R5206	D-3
* R5207	D-2
* R5208	C-6
* R5209	E-2
* R5210	C-6
* R5211	C-5
* R5212	C-5
* R5213	C-5
* R5214	C-5
* R5215	C-6
* R5216	E-2
* R5217	C-5
* R5218	B-4
* R5219	A-6
* R5220	E-2
* R5222	B-5
* R5223	A-6
* R5224	E-2
* R5225	E-6
* R5226	E-4
* R5227	B-6
* R5228	A-5
* R5229	E-2
* R5230	E-6
* R5231	E-4
* R5232	B-5
* R5233	B-4
* R5234	E-2
* R5235	C-5
* R5236	B-4
* R5237	C-7
* R5238	B-5
* R5239	C-6
* R5240	C-7
* R5241	C-6
* R5242	C-7
* R5243	D-2
* R5244	E-2
* R5245	E-3
S5201	E-7
S5202	D-6
S5203	C-5
S5204	E-4
S5205	E-4
S5206	B-5
S5207	B-4
S5208	B-5
S5209	B-6
S5210	B-7
S5211	B-6
S5212	B-7
S5213	C-6
S5214	A-7
S5215	A-6
S5217	B-4
S5218	E-1
S5219	E-2
S5220	C-7
S5221	D-5
S5516	A-5

FP-504 BOARD

C601	E-5
D601	B-1
D602	E-6
D603	E-6
D605	B-1
D606	E-6
D607	D-2
D608	E-3
D609	B-4
D610	B-3
F601	C-4
IC601	D-6
PH601	E-2
PH602	E-3
Q601	C-1
R601	C-2
R602	B-1
R603	C-4
R604	B-1
R605	E-5
R606	C-1
R607	C-1
S601	B-2
S602	B-3
S603	B-1
S604	B-4

XD-002 BOARD

* C400	D-1
* C401	D-1
* C402	D-1
* C403	C-1
* C404	C-1
* C405	C-1
C407	A-2
C408	B-2
C409	B-1
* C410	C-2
C411	B-2
C412	B-2
* C413	C-2
* C414	C-3
* C415	C-3
* C416	C-3
* C417	D-3
* C418	D-2
* C419	D-3
* C420	D-2
* C421	D-2
C422	A-2
C423	A-2
CN401	B-3
D402	B-2
D403	A-3
D404	A-3
* IC401	C-1
IC402	A-2
* L400	C-2
* L401	C-3
* L402	C-3
* L403	D-3
* Q402	C-3
* Q403	D-3
* Q404	D-2
Q405	A-1
Q406	A-1
Q407	A-1
Q408	A-2
Q409	B-2
Q410	B-1
* Q411	C-2
R142	A-1
R143	A-1
* R402	C-3
* R404	C-1
* R405	C-1
* R406	C-1
* R407	C-1
* R409	D-1
R410	A-2
R411	A-2
R414	B-2
R415	A-2
R416	A-2
R417	B-2
R418	B-1
* R419	C-2
R420	B-2
R421	B-2
R422	B-1
R423	B-1
R425	A-3

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

XS-002 BOARD

S105	B-1
S104	B-2
CN103	A-3
R104	A-3
C102	A-3
C101	A-3
R101	A-3
R102	A-3
S100	B-3
CN101	B-3
S103	B-4
S102	B-5
CN100	B-5
CN102	B-5

XM-002 BOARD

* C200	B-6
* C201	B-6
* C202	B-6
* C203	B-6
* C204	B-6
* C205	B-6
* C206	B-6
* C207	B-6
C208	B-1
C209	B-1
C210	A-1
C211	B-1
C212	A-1
* C213	A-5
* C214	B-5
* C215	A-5
* C216	B-5
* C217	B-5
* C218	B-5
* C219	B-5
* C220	B-5
* C221	C-5
* C222	C-5
* C223	C-5
* C224	A-6
C226	B-1
* C231	A-6
* C232	A-6
* C233	A-6
* C234	A-6
* C235	A-6
* C236	A-6
* C237	A-6
* C238	A-7
* C239	B-5
* C240	B-5
* C241	A-6
* C300	C-6
* C301	C-6
* C302	C-6
* C303	C-6
* C304	C-6
* C305	C-6
* C306	D-7
* C307	D-7
* C308	D-7
C309	D-1
C310	C-1
C311	D-1
C312	C-1
* C313	C-5
* C314	D-5
* C315	C-5
* C316	D-5
* C317	D-5
* C318	D-6
* C319	D-5
* C320	D-5
* C321	D-5
* C322	D-6
* C323	D-6
C326	D-1
C328	D-1
* C331	D-6
* C332	D-5
* C333	D-5
* C334	D-6
CN200	B-3
CN201	A-1
CN202	D-1
CN300	C-3
CN301	C-1
* D001	C-5
* D002	C-5
* D003	C-5
* D004	C-5
* D200	A-5
* D201	A-5
* D202	A-5
* D203	A-5
* IC200	A-5
* IC201	B-5
* IC203	A-6
* IC204	A-7
* IC205	A-6
* IC300	C-5
* IC301	D-5
* IC303	D-6
* L200	C-6
* L202	C-6
L203	B-1
* L300	C-6
* L302	D-6
L303	D-1
* R200	B-7
* R201	B-6
* R202	B-7
* R203	B-6
* R204	B-7
* R205	B-6
* R206	B-7
* R207	B-6
* R208	B-6
* R209	B-7
* R210	B-6
R211	B-1
* R212	B-6
* R213	B-5
* R214	A-5
* R215	B-5
* R216	B-5
* R217	A-5
* R218	A-5
* R219	A-5
* R219	C-5
* R220	A-5
* R221	B-5
* R222	B-6
* R223	B-6
* R224	B-5
* R225	B-5
* R226	B-5
* R227	B-5
* R228	C-6
* R232	A-6
* R233	A-6
* R234	A-6
* R235	B-7
* R236	B-6
* R237	A-6
R239	B-1
R240	A-1
* R241	A-6
* R242	A-6
* R243	A-6
* R244	A-7
* R245	A-6
* R300	C-6
* R301	C-7
* R302	C-6
* R303	C-7
* R304	C-6
* R305	C-7
* R306	C-7
* R307	C-7
* R308	C-7
* R309	C-7
* R310	C-7
* R311	D-7
* R312	D-6
* R313	D-5
* R314	C-5
* R315	D-5
* R316	D-5
* R317	C-5
* R318	C-5
* R320	C-5
* R321	D-5
* R322	D-6
* R323	D-6
* R324	D-5
* R325	D-5
* R326	D-5
* R327	D-5
* R330	D-6
* R331	D-6
* R332	D-7
* R333	C-6
* R338	C-7
R339	D-1
R340	C-1
* R341	C-6

VC-318 BOARD

C1201	B-6
C1202	A-6
C1203	C-6
C1204	B-6
C1205	B-6
C1206	B-6
C1207	B-6
C1208	B-5
C1209	B-5
C1210	B-5
C1211	C-6
C1212	A-5
C1213	B-5
C1214	B-5
C1215	B-5
C1216	B-5
C1217	B-4
C1218	B-4
C1219	A-4
C1220	C-5
C1221	B-4
C1222	B-4
C1223	B-4
C1224	A-4
C1225	C-5
* C1226	A-3
* C1227	B-5
* C1228	C-5
* C1229	A-3
* C1230	B-5
* C1231	C-5
* C1232	A-4
* C1233	A-5
* C1234	B-5
* C1235	A-4
* C1236	A-5
* C1237	B-5
* C1238	A-4
* C1239	A-5
* C1240	B-5
* C1241	A-4
* C1242	A-5
* C1243	C-5
* C1244	A-4
* C1245	A-4
* C1246	A-4
* C1247	B-4
* C1248	B-4
* C1249	C-4
* C1250	A-4
* C1251	B-4
* C1252	C-4
C1253	A-4
C1254	A-3
C1255	B-3
C1256	B-3
C1257	A-4
C1258	C-3
C1259	A-3
C1260	B-3
C1261	A-4
C1262	B-4
C1263	B-4
* C1265	A-3
* C1266	B-5
* C1267	C-5
* C1301	C-4
* C1302	B-3
* C1303	A-4
* C1304	C-4
C1305	B-4
* C1306	C-4
* C1307	B-3
* C1308	B-3
* C1309	B-4
* C1310	B-4
* C1311	C-4
* C1312	C-4
* C1313	C-4
* C1314	C-4
* C1315	C-4
* C1316	B-4
* C1317	B-4
* C1318	B-4
* C1319	B-4
* C1320	C-4
* C1321	C-4
* C1322	C-3
* C1323	B-4
* C1324	B-4
C1326	C-3
C1327	C-3
* C1328	B-4
* C1351	D-2
* C1352	D-2
* C1353	C-4
* C1354	C-4
* C1601	E-3
* C1602	E-3
* C1603	E-3
* C1604	E-4
* C1605	E-2
* C1606	E-4
* C1607	D-4
* C1608	D-2
* C1609	D-4
* C1610	D-4
* C1611	D-3
* C1612	D-3
* C1613	D-4
* C1614	D-3
* C1615	D-3
* C1616	D-3
* C1617	D-3
* C1618	D-3
* C1619	D-3
* C1620	D-2
* C1621	D-2
* C1622	D-2
* C1623	D-4
* C1624	E-2
* C1701	D-4
* C1703	D-4
* C1705	D-4
* C1706	D-4
* C1707	E-5
* C1708	E-5
* C1709	C-5
* C1710	C-5
* C1711	C-5
* C1712	C-5
* C1713	C-5
* C1714	D-5
* C1716	D-4
* C1717	C-5
* C1718	D-5
C1801	C-4
C1802	C-4
C1901	D-5
C1902	E-5
C1903	D-5
* C1904	E-5
C1905	E-4
* C1906	E-4
C1907	D-4
C1908	D-3
C1909	D-4
C1910	D-4
C1911	E-4
C1912	E-4
C1913	D-4
C1914	D-4
C1915	E-4
C1916	D-4
C1917	E-4
C1918	D-4
C1919	D-4
C1920	D-4
C1921	D-4
C1922	D-4
C1923	D-4
C1924	D-3
C1925	D-4
C1926	D-3
C1927	D-3
* C2001	B-7
* C2002	A-6
* C2003	B-6
* C2004	B-7
* C2005	A-7
* C2006	B-7
* C2007	B-7
* C2008	B-7
* C2009	A-7
* C2010	A-7
* C2011	A-7
* C2012	A-7
* C2013	A-7
* C2014	B-7
* C2015	B-7
* C2016	A-7
* C2017	A-7
* C2018	B-7
* C2019	B-7
* C2020	A-7
* C2021	B-7
* C2022	A-6
* C2023	A-7
* C2024	A-7
* C2025	B-7
* C2026	B-7
* C2027	A-7
* C2101	C-6
* C2102	C-6
* C2103	D-5
* C2104	D-5
* C2105	E-6
* C2106	E-6
* C2107	E-6
* C2108	C-6
* C2109	E-6
* C2110	E-6
* C2111	C-6
* C2112	C-7
* C2113	C-7
* C2114	E-6
* C2115	E-6
* C2116	E-7
* C2117	C-6
* C2118	C-6
* C2119	D-7
* C2120	D-7
* C2121	D-7
* C2122	D-7
* C2123	E-6
* C2124	E-6
* C2125	D-7
* C2126	E-7
* C2127	E-6
* C2128	D-7
* C2129	D-7
* C2130	C-7
* C2131	C-7
* C2132	C-7
* C2133	C-7
* C2134	D-7
* C2135	D-1
* C2136	E-1
* C2137	D-1
* C2138	D-2
* C2139	D-2
* C2140	E-2
* C2141	D-2
* C2142	E-7
* C2143	D-7
* C2144	D-7
* C2145	C-7
* C2146	D-7
* C2302	B-7
* C2303	B-7
* C2304	B-6
* C2305	C-6
* C2306	C-6
* C2307	C-6
* C2308	C-6
* C2309	C-6
* C2310	C-6
* C2311	C-6
* C2312	C-5
* C2313	C-6
* C2316	B-6
* C2317	C-7

— Continued on next page —

COVER

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

VC-318 BOARD

C2401	D-7
C2402	D-7
C2403	D-7
C2404	D-7
C2405	D-7
C2406	D-7
C2407	C-6
C2408	C-7
C2409	D-7
C2410	E-7
C2411	E-7
C2412	D-7
C2413	E-7
C2414	C-7
C2415	E-5
C2416	D-7
C2417	D-6
C2418	C-7
C2419	C-7
C2420	D-7
C2422	D-7
C2423	D-7
C2424	D-7
C2425	D-6
C2426	D-6
C2427	D-7
C2428	D-6
C2429	D-7
C2430	D-7
C2431	D-6
C2432	D-7
C2433	D-6
C2434	C-7
C2435	C-7
C2436	D-7
C2437	C-7
C2501	E-5
C2502	E-5
* C2503	E-5
* C2504	E-5
C2505	E-6
C2506	E-6
C2507	E-6
C2508	D-5
C2509	D-6
C2510	D-5
C2511	D-6
C2512	C-5
C2513	C-5
C2514	C-6
C2515	D-5
C2516	C-5
C2517	C-5
C2518	C-6
C2519	C-6
C2520	C-6
C2521	C-6
C2522	E-6
C2523	C-5
C2524	C-6
C2525	D-5
C2526	D-4
C2715	E-2
C2716	E-1
C2717	E-2
C2718	E-2
C2719	E-2
C2720	E-2
C2721	E-2
C2725	C-7
C2901	C-6
C2902	B-7
* C2903	A-7
C2904	C-6
C2905	B-7
C2906	B-7
C2907	B-7
C2908	A-7
C2909	A-7
C2910	A-7
C2912	B-7
C2913	B-7
C2914	A-7
C2915	A-6
C2916	B-6
C2917	B-6
C2918	B-6
C2919	B-6
C2920	C-6
C2921	B-6
C2922	B-6
C2923	C-6
C2924	A-6
C2925	A-6
C2926	B-7
C2927	B-7
C2928	B-7
C3001	A-6
C3002	A-6
C3003	A-6
* C3004	A-5
* C3005	A-5
* C3006	B-6
* C3007	B-5
C3101	D-2
C3102	D-2
C3103	D-3
C3104	D-3
C3105	D-3
C3106	C-2
C3107	D-2
C3108	D-2
C3109	D-2
C3110	D-2
C3111	D-2
C3112	D-2
C3113	D-2
C3114	D-2
C3115	D-2
C3116	D-2
C3116	D-2
C3117	D-2
C3117	D-2
C3118	D-3
C3119	C-2
C3120	C-2
C3121	D-3
C3122	D-3
* C4301	C-2
* C4302	C-2
* C4303	C-2
CN1001	C-6
CN1002	C-4
CN1003	D-1
CN1005	E-3
CN1006	E-6
CN1007	E-7
CN1008	C-7
CN1009	A-7
* CN1021	E-2
CN1022	E-5
* CN1023	A-6
* CN1024	C-7
CN1201	B-4
CN1901	E-4
* D1001	E-2
D1201	B-6
D1202	B-6
D1203	B-6
D1204	A-4
* D2101	E-7
* D2102	E-7
* D2103	C-7
* D2104	C-7
D2701	E-2
D2702	E-1
D2703	E-2
D2901	A-6
D2903	B-6
D2904	B-7
D2905	C-6
D2906	A-7
D2907	A-7
D2909	A-7
D3101	C-2
* D4301	C-2
FB1201	B-6
* FB1204	D-5
FB1207	C-4
* FB1210	A-3
* FB1211	B-5
* FB1212	C-5
FB1213	A-4
FB1214	B-4
FB1215	A-4
* FB1216	A-4
* FB1217	A-4
* FB1218	B-4
* FB1219	B-4
* FB1220	C-4
* FB1221	C-4
* FB1301	C-4
FB1302	C-3
* FB1303	C-4
* FB1351	C-4
* FB1601	D-2
* FB1602	D-2
* FB1701	C-5
* FB1702	D-4
FB1901	D-5
* FB2001	B-7
* FB2101	C-6
* FB2102	C-6
* FB2103	D-1
* FB2105	D-7
* FB2301	C-6
* FB2302	B-6
* FB2303	B-6
FB2501	C-5
FB2502	C-5
FB2503	C-5
FB2902	B-6
FB2903	C-6
FB2904	A-7
FB2905	A-6
FB2906	A-7
FB3001	A-6
* FB3002	A-5
* FB3003	B-6
FB3101	D-2
IC1201	B-6
IC1202	B-5
* IC1203	A-4
* IC1204	B-5
* IC1205	C-5
* IC1301	B-4
IC1302	C-3
* IC1351	C-3
* IC1601	E-3
* IC1701	D-4
* IC1704	D-5
IC1801	C-4
IC1901	D-4
IC1902	D-4
* IC2001	B-7
* IC2101	D-6
* IC2102	D-2
* IC2301	C-7
* IC2302	C-6
IC2401	D-7
IC2402	D-7
IC2501	D-6
IC2502	C-5
IC2701	E-1
IC2702	E-1
IC2703	E-2
* IC2901	A-7
IC2902	B-7
IC2903	A-7
IC2904	B-7
IC2905	A-6
* IC2906	A-6
IC3001	A-5
* IC3002	B-6
IC3101	D-2
* IC4301	C-2
L1006	B-7
L1201	B-6
L1202	C-4
L1203	B-5
* L1204	A-4
* L1205	A-5
* L1206	C-5
L1207	A-4
L1208	B-4
L1209	B-4
* L1210	A-3
* L1211	B-5
* L1212	C-5
* L1301	C-4
* L1302	B-3
* L1303	A-4
* L1304	C-5
* L1601	D-2
* L1602	D-4
* L1701	C-5
L1801	C-4
* L1901	E-5
* L1902	E-5
L1903	D-3
* L2001	B-6
* L2002	B-6
* L2101	E-6
* L2102	C-6
* L2103	D-7
* L2104	D-7
* L2105	E-1
L2401	D-7
L2901	B-7
* L4301	C-2
Q1001	D-1
Q1002	D-1
Q1003	D-1
Q1201	A-4
Q1202	A-4
Q1901	E-5
* Q2001	A-6
* Q2002	B-6
* Q2003	A-6
* Q2004	A-6
* Q2101	D-7
* Q2102	D-7
* Q2103	D-7
* Q2104	C-7
Q2401	C-6
* Q2402	E-5
Q2501	C-5
Q2701	E-2
Q2703	C-7
Q2704	C-7
Q2903	B-6
Q2904	A-7
Q2905	A-6
Q2906	A-6
Q2909	B-7
Q2910	A-6
Q2911	A-6
Q2912	A-6
Q2913	B-6
Q2915	B-6
Q3101	C-2
* Q4301	C-2
* Q4302	D-2
* Q4303	C-2
* R1001	E-2
* R1002	D-2
* R1003	D-2
* R1004	E-2
R1021	E-6
R1022	E-6
R1023	A-7
R1201	B-4
R1202	B-6
R1203	A-6
R1204	B-6
R1205	B-5
R1206	B-5
R1207	A-6
R1208	B-5
R1209	A-5
R1210	B-5
R1211	C-5
R1212	B-5
R1213	B-5
R1214	B-5
R1215	B-4
R1216	B-4
R1220	B-4
R1221	B-4
R1222	A-4
R1229	A-4
R1230	A-4
* R1301	B-3
* R1302	B-4
* R1303	C-4
* R1304	C-4
* R1305	C-4
* R1306	C-4
* R1307	C-4
* R1308	C-4
* R1309	C-4
* R1310	C-4
* R1311	C-4
* R1312	C-4
* R1313	C-4
* R1314	C-4
* R1315	C-4
* R1316	C-4
* R1317	C-4
* R1318	C-4
* R1325	B-3
* R1326	B-4
* R1327	B-4
R1328	C-2
* R1351	C-4
* R1601	E-3
* R1602	E-3
* R1603	E-2
* R1604	E-2
* R1605	E-2
* R1606	E-2
* R1607	D-4
* R1707	E-5
* R1709	C-5
* R1710	C-5
* R1712	D-5
* R1713	D-5
* R1714	D-5
* R1715	D-5
R1901	E-4
R1902	E-5
R1903	D-5
R1904	D-4
R1905	D-4
R1906	D-4
R1907	E-4
R1908	E-4
R1910	D-3
R1911	D-3
R1912	D-4
R1913	D-4
R1914	D-4
R1915	D-4
R1916	E-3
R1917	E-4
R1918	E-3
R1919	E-3
R1920	E-4
R1921	E-4
R1922	D-4
* R2001	A-6
* R2002	A-6
* R2003	A-6
* R2004	A-7
* R2005	B-7
* R2006	B-6
* R2007	A-6
* R2008	A-6
* R2009	A-6
* R2010	A-6
* R2011	A-7
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* R2103	D-7
* R2104	E-6
* R2105	E-7
* R2106	E-6
* R2107	D-7
* R2108	D-7
* R2109	D-7
* R2110	D-7
* R2111	C-6
* R2112	C-6
* R2113	D-7
* R2114	E-6
* R2115	D-7
* R2116	E-6
* R2117	C-7
* R2118	C-7
* R2119	C-7
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* R2137	D-2
* R2138	D-2
* R2139	D-2
* R2140	D-2
* R2141	D-2
* R2142	D-7
* R2143	D-7
* R2144	D-7
* R2145	D-7
* R2301	B-7
* R2302	B-6
* R2304	C-6
* R2305	C-6
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R2724	C-7
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R2735	C-7
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R2902	B-7
R2903	A-7
R2904	C-7
R2905	A-7
R2906	B-7
* R2907	A-7
R2908	C-7
R2909	B-7
R2910	B-7
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R2956	A-7
R2964	B-6
R2965	B-7
R2966	C-6
R3001	A-6
R3002	A-6
* R3008	B-5
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R3102	C-2
R3103	C-2
R3104	C-2
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R3106	D-2
R3107	D-3
R3108	D-3
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R3128	C-2
* R4301	C-2
* R4302	C-2
* R4303	C-2
* R4304	C-2
* R4305	C-2
* R4306	C-2
* R5104	A-6
* R5105	A-6
* R5106	A-6
* R5107	A-6
* RB2101	D-7
RB2501	D-6
RB2502	C-5
RB2503	D-6
* RB2901	A-7
RB3101	D-2
RB3102	D-2
RB3103	D-2
RB3104	D-2
RB3106	D-3
RB3107	D-2
RB3110	D-3
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VD2901	B-7
VD2902	B-7
X1201	B-5
* X2101	E-6
* X2301	C-7
* X2501	E-5
X2901	B-7
X3101	C-2
X3102	D-2

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

DB-016 BOARD

* C1501	C-2
* C1502	C-2
* C1503	C-2
* C1504	C-2
* C1505	C-2
* C1506	C-2
* C1507	C-2
* C1508	D-1
* C1509	D-2
* C1510	D-2
* C1511	C-1
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* C1515	C-2
* C1516	C-3
* C1517	C-3
* C1518	C-3
* C1519	C-2
* C1520	D-1
* C1521	C-2
* C1522	C-3
* C1523	C-3
* C1524	C-2
C3401	C-3
C3402	C-2
* C3403	B-3
* C3404	B-3
C3405	C-3
* C3406	B-4
* C3407	B-3
* C3408	B-3
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* C3416	C-4
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* C3443	B-3
* C3445	C-3
* C3446	C-3
* C3447	C-3
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C4216	A-3
C4217	A-3
C4218	B-3
C4219	B-3
C4220	B-2
C4221	B-2
* C6001	D-3
* C6002	D-3
* C6003	D-3
* C6004	D-3
* C6005	D-4
* C6006	D-4
* C6007	D-4
* C6008	D-4
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* C6015	D-4
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* C6017	D-4
* C6018	D-4
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* C6022	D-4
* C6023	D-5
* C6024	D-2
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* C6026	D-5
* C6027	D-5
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* C6042	D-2
* C6043	D-2
* C6045	D-4
* C6202	D-6
* C6203	D-6
* C6204	D-5
* C6205	D-5
* C6206	D-5
* C6207	D-5
* C6208	D-6
* C6209	D-5
* C6210	D-5
* C6211	D-6
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* C6215	D-6
* C6216	D-6
* C6217	D-5
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C6303	D-5
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C6305	D-4
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C6309	D-4
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C6311	D-5
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C7006	D-2
C7007	D-2
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C7010	D-2
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C7012	D-3
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C7014	D-2
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C7016	D-2
C7017	D-3
C7018	D-2
C7019	D-2
C7020	D-2
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C7025	D-2
C7026	D-3
C7027	D-3
C7028	D-2
C7030	D-2
C7031	D-3
C7200	A-5
C7201	A-5
C7202	A-4
C7211	A-3
C8000	D-6
* C8001	A-6
* C8002	A-6
* C8003	A-6
* C8004	A-6
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* C8012	A-6
* C8013	B-6
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* C8022	B-5
C8023	C-6
C8024	C-6
* C8025	A-5
C8026	C-6
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* C8028	B-4
* C8029	B-5
* C8030	C-5
* C8031	A-4
* C8032	B-5
* C8033	B-5
* C8034	A-4
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* C8038	B-4
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* C8040	C-6
* C8041	A-4
* C8042	B-5
* C8043	B-4
* C8044	C-4
* C8045	B-5
* C8046	A-4
* C8047	A-4
* C8048	A-5
* C8049	B-5
* C8050	C-4
* C8051	B-4
* C8052	B-5
* C8053	C-5
* C8054	A-4
* C8055	C-6
* C8056	C-5
* C8057	C-4
* C8058	C-5
C8059	C-5
* C8060	C-4
* C8061	C-5
* C8062	C-4
* C8063	B-6
* C8064	C-4
* C8065	C-6
* C8066	C-5
C8067	C-4
* C8068	C-4
* C8069	C-6
C8070	C-5
* C8071	C-5
C8072	C-5
* C8073	C-4
C8074	C-5
C8075	C-4
* C8076	B-5
C8077	C-5
* C8078	B-4
* C8079	B-4
* C8080	D-3
* C8081	D-3
* C8082	D-3
CN1004	D-1
CN1010	A-5
CN1501	C-1
CN7200	D-5
CN7201	D-4
CN7202	D-6
CN7204	D-3
CN7205	A-4
* CN7206	D-5
* CN7207	D-3
* D2902	B-6
* D3401	B-4
* D3402	B-3
D4201	B-3
* D6001	A-4
D6301	D-4
D6302	D-5
D7200	D-5
D7201	D-4
D7202	D-5
D7203	D-4
* D7204	A-3
* D7205	A-4
* D7206	A-4
* D7207	A-3
* D7208	A-4
* D7209	A-3
* D7210	D-4
D8000	D-6
D8001	D-6
* D8002	D-6
* D8003	A-4
* D8004	C-5
F8000	D-6
F8001	B-6
F8002	B-6
F8003	C-6
F8004	C-6
F8005	B-6
F8006	B-6
F8007	A-5
FB4201	B-2
* FB6001	D-5
* FB6201	D-5
FB7001	D-3
* IC1501	C-1
* IC1502	C-1
* IC1503	D-1
* IC1504	C-2
* IC1505	C-3
* IC1506	C-3
* IC3401	B-3
IC3402	C-2
* IC3403	C-3
IC3404	C-3
* IC3405	C-3
* IC3406	A-3
IC4201	A-3
IC4202	B-3
* IC6001	D-4
* IC6002	D-2
* IC6004	D-5
* IC6201	D-6
IC6301	D-5
IC6302	D-4
IC6303	D-5
IC6304	C-4
* IC6305	D-5
IC7001	D-2
* IC8000	B-6
* IC8001	A-4
* IC8002	A-5
* IC8003	B-4
IC8004	C-5
* IC8005	D-3
* L1501	C-2
L3402	C-3
L3403	C-3
L4201	B-2
L4202	B-3
L4203	A-3
L43401	B-2
* L6001	D-5
* L6002	D-5
* L6201	D-6
L7001	D-4
L7002	D-3
L7003	D-2
L7004	D-3
L8000	B-4
L8001	A-4
L8002	B-5
L8003	B-5
L8004	A-4
L8005	B-5
L8006	B-4
L8007	B-4
L8008	B-5
L8009	B-4
* L8010	C-4
* L8012	C-5
* L8013	C-6
* L8014	C-4
* L8015	C-5
* L8016	C-4
* L8017	C-5
* L8018	C-4
* L8019	C-5
* L8020	C-4
* L8021	C-4
* L8022	B-6
* L8023	C-5
* L8024	C-4
L8025	C-4
L8026	C-5
L8027	C-5
L8028	C-5
LF8000	C-6
* Q1501	D-2
* Q1502	D-2
* Q1503	C-2
* Q1504	C-2
* Q2907	B-6
* Q2908	C-6
* Q3401	B-4
Q3402	C-2
Q3403	C-2
* Q3404	C-4
* Q3405	B-3
* Q3406	C-3
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* Q6002	D-3
* Q6003	D-3
* Q6004	D-3
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* Q6006	D-3
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* Q6008	D-3
* Q6009	D-3
* Q6010	D-2
* Q6011	D-3
Q7001	D-2
Q7002	D-3
Q7003	D-3
Q7004	D-3
Q7005	D-3
* Q7200	A-3
Q8000	D-6
Q8001	D-6
* Q8002	D-6
* Q8003	D-6
* Q8004	B-6
Q8005	B-6
Q8006	B-6
Q8007	B-5
* Q8008	B-5
* Q8009	B-5
* Q8010	A-4
* Q8011	B-5
* Q8012	B-4
* Q8013	B-5
* Q8014	B-5
* Q8015	B-4
* Q8016	B-4
Q8017	B-6
Q8018	B-6
* Q8019	A-4
* Q8020	B-5
* Q8021	B-6
* Q8022	A-4
* Q8023	B-5
* Q8024	B-4
* Q8025	C-4
* Q8026	B-5
* Q8027	B-4
Q8028	A-5
* Q8029	C-4
* Q8030	C-4
* Q8031	C-4
* Q8032	C-5
* Q8033	C-5
* Q8034	C-5
* R1501	C-1
* R1502	C-2
* R1503	C-2
* R1504	C-1
* R1505	C-1
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* R1508	C-1
* R1509	C-2
* R1510	C-2
* R1511	C-2
* R1512	C-2
* R1513	D-1
* R1514	D-2
* R1515	D-1
* R1516	D-2
* R1517	D-1
* R1518	D-2
* R1519	D-1
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* R1525	C-2
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* R1538	C-3
* R1539	D-2
* R1540	D-2
* R1541	C-2
* R1542	C-2
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* R2943	B-6
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* R3402	C-3
* R3403	C-3
* R3404	C-4
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R3411	C-3
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* R3413	B-3
* R3414	B-3
R3415	C-2
R3416	C-2
* R3417	B-4
* R3418	B-4
* R3419	B-4
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R3439	C-3
R3440	C-3
R3441	D-3
R3442	C-3
R3444	D-4
R3445	D-4
R3446	C-3
R3447	C-4
R3450	C-3
R3451	C-4
* R3452	B-3
* R3453	C-3
* R3454	C-3
* R3455	C-3
* R3456	B-3
* R3457	C-3
* R3458	C-3
* R3459	C-3
* R3460	C-3
* R3461	C-3
* R3462	C-3
* R3463	C-3
* R3464	C-3
* R3465	C-3
* R3466	C-3
* R3467	C-3
* R3468	C-3
* R3469	C-3
* R3470	C-3
R3471	C-4
R3472	C-4
R3473	C-4
R3474	C-4
R3475	C-3
R3476	C-3
R3477	C-3
* R3478	B-3
* R3479	B-3
R3480	C-2
R4201	A-2
R4202	A-2
R4204	A-2
R4205	B-3
R4206	B-3
R4207	B-3
R4208	B-3
R4209	B-3
R4210	B-3
R4211	B-3
R4212	A-3
R4213	A-3
R4214	A-3
R4216	B-3
R4217	B-3
R4218	B-3
R4219	B-3
R4221	B-3
R4222	B-3
R4223	B-3
R4224	B-3
R4225	A-2
R4226	B-2
* R6001	D-3
* R6002	D-3
* R6003	D-3
* R6004	D-3
* R6005	D-3
* R6006	D-3
* R6007	D-3
* R6008	D-1
* R6009	D-3
* R6010	D-3
* R6011	D-3
* R6012	D-3
* R6013	D-3
* R6014	D-1
* R6015	D-3
* R6016	D-3
* R6017	D-4
* R6018	D-4
* R6019	D-4
* R6020	D-4
* R6021	D-5
* R6022	D-5
* R6023	D-2
* R6024	D-2
* R6025	D-2
* R6026	D-2
* R6027	D-2
* R6028	D-2
* R6029	D-2
* R6030	D-3
* R6031	D-3
* R6032	D-4
* R6033	D-4
* R6034	D-2
* R6035	D-2
* R6036	D-4

— Continued on next page —

4-3. PRINTED WIRING BOARDS

no mark : side A
* mark : side B

DB-016 BOARD

*	R6201	D-5
*	R6202	D-5
	R6304	D-4
	R6305	D-4
	R6306	D-4
	R6307	D-5
	R6309	D-4
	R6310	D-5
	R6311	D-5
	R6312	C-5
	R6315	C-5
	R6316	D-5
	R6317	C-5
	R6318	D-5
	R6319	D-4
	R6320	D-4
*	R6321	D-5
	R6322	C-4
	R6323	C-4
	R6324	C-4
*	R6327	D-5
*	R6328	D-5
	R6329	C-4
	R6330	C-4
	R6331	D-4
	R6335	C-4
	R6336	A-4
	R7001	D-2
	R7002	D-2
	R7003	D-2
	R7004	D-2
	R7005	D-3
	R7006	D-3
	R7007	D-3
	R7008	D-2
	R7009	D-2
	R7010	D-2
	R7011	D-3
	R7012	D-2
	R7013	D-3
	R7016	D-3
	R7017	D-2
	R7018	D-2
	R7019	D-3
	R7020	D-3
	R7021	D-3
	R7022	D-2
	R7023	D-2
	R7024	D-3
	R7025	D-3
	R7026	D-3
	R7027	D-3
	R7028	D-3
	R7029	D-3
	R7200	A-3
	R7201	A-3
	R7202	A-3
	R7203	A-3
*	R7204	A-4
*	R7205	A-3
*	R7206	A-4
*	R7207	A-4
*	R7208	A-4
*	R7209	A-3
	R8000	D-6
	R8001	D-6
*	R8002	A-6
*	R8003	A-6
	R8004	D-6
*	R8005	B-6
*	R8006	A-6
*	R8007	B-6
*	R8008	B-6
*	R8009	A-6
*	R8010	C-6
*	R8011	A-6
*	R8012	A-6
*	R8013	B-6
*	R8014	B-6
*	R8015	B-6
*	R8016	B-6
*	R8017	B-6
*	R8018	B-6
*	R8019	A-6
*	R8020	D-6
*	R8021	D-6
*	R8022	A-6
*	R8023	A-6
*	R8024	A-6
*	R8025	A-6
*	R8026	B-6
*	R8027	B-6
*	R8028	B-6
*	R8029	B-6
*	R8030	B-6
*	R8031	B-6
*	R8032	B-6
*	R8033	A-5
*	R8034	B-5
*	R8035	B-6
*	R8036	A-5
*	R8037	A-5
*	R8038	A-5
*	R8039	A-5
*	R8040	A-6
*	R8041	A-6
*	R8042	A-6
*	R8043	B-4
*	R8044	C-5
*	R8045	B-5
*	R8046	B-4
*	R8047	B-5
*	R8048	B-4
*	R8049	B-5
*	R8050	B-5
*	R8051	B-4
	R8052	B-6
	R8053	B-6
	R8054	A-5
	R8055	B-5
	R8056	A-5
	R8057	A-5
	R8058	A-5
	R8059	A-5
	R8060	A-5
*	R8061	B-4
*	R8062	B-4
*	R8063	B-4
*	R8064	B-4
*	R8065	A-5
*	R8066	A-4
*	R8067	A-4
*	R8068	C-4
*	R8069	C-5
*	R8070	C-5
*	R8071	C-5
*	R8072	C-4
*	R8073	C-5
*	R8074	C-5
*	R8075	C-5
*	R8076	C-5
*	R8077	C-5
*	R8078	C-5
*	R8079	C-6
*	R8080	C-5
*	R8081	B-4
	R8082	C-4
*	R8083	B-4
*	R8084	C-5
*	R8085	B-5
*	R8086	A-4
*	R8087	A-4
*	R8088	B-4
*	R8089	B-4
*	R8090	D-3
	X7001	D-2

COVER

SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

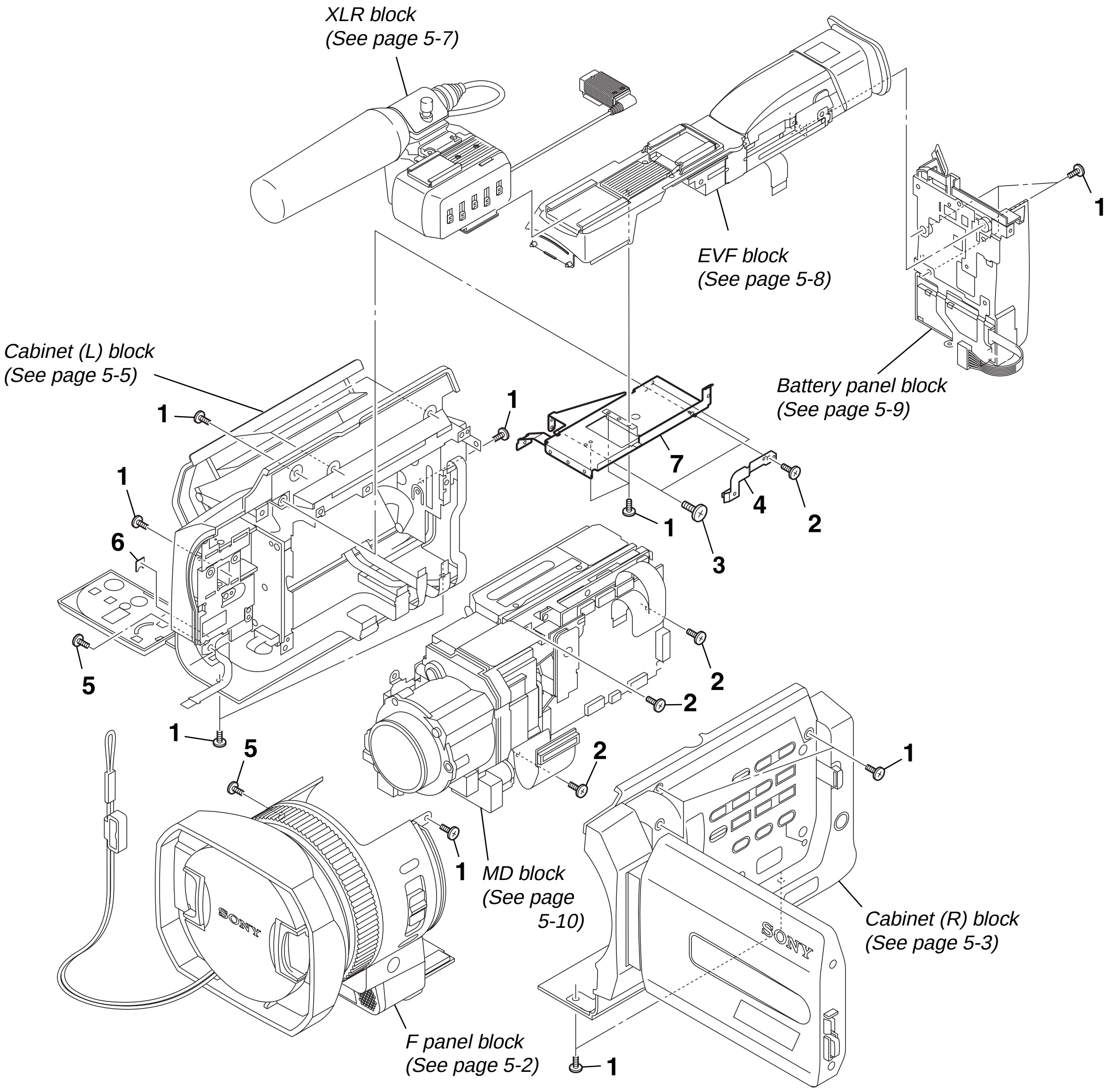
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

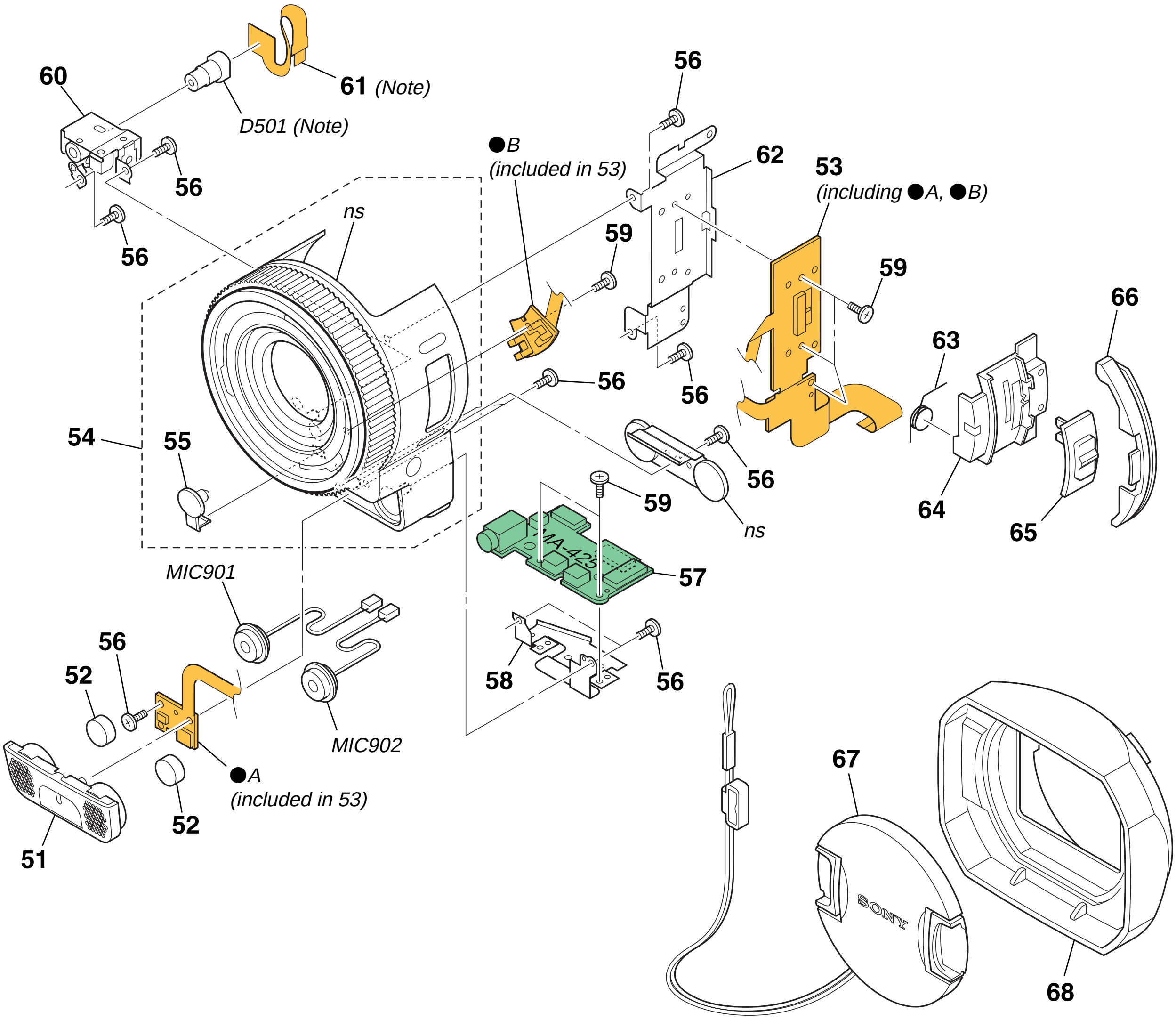
5-1-1. MAIN SECTION


XLR block
(See page 5-7)
EVF block
(See page 5-8)
1
Battery panel block
(See page 5-9)
Cabinet (L) block
(See page 5-5)
1
1
1
7
4
2
1
3
6
2
5
2
1
5
2
1
1
MD block
(See page
5-10)
Cabinet (R) block
(See page 5-3)
F panel block
(See page 5-2)
1

Ref. No.	Part No.	Description
1	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
2	3-989-859-01	SCREW (M1.7) STEP, HEAD
3	3-713-791-31	SCREW (M1.7X6), TAPPING, P2
4	X-3952-813-1	RETAINER (B) ASSY, MF KNOB
5	3-055-573-21	SCREW (M1.7), LOCK ACE, P2
6	3-076-834-01	SHEET, AF BLIND
7	X-3952-923-1	CHASSIS ASSY, TOP

5-1-2. F PANEL BLOCK

ns : not supplied


60
61 (Note)
D501 (Note)
56
56
56
ns
●B
(included in 53)
62
53
(including ●A, ●B)
59
59
66
63
64
65
54
55
56
56
56
59
ns
MA-425
57
MIC901
56
52
52
51
●A
(included in 53)
MIC902
58
56
67
SONY
68

Note :
Be sure to read "SERVICE NOTE" on page 1-3 when replacing the laser unit (D501) and the FP-500 flexible board.

Ref. No.	Part No.	Description
51	X-3952-617-1	GRILLE ASSY, MICROPHONE
52	3-076-349-01	SHEET, GRILLE
53	A-7078-341-A	FP-504 BOARD, COMPLETE
54	X-3952-656-1	PANEL ASSY, FRONT
55	3-076-276-01	COVER, MICROPHONE JACK
56	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
57	A-7078-515-A	MOUNTED PWB, MA-425
58	3-076-348-01	BRACKET, MA
59	4-974-725-01	SCREW (M1.7X2.5), P
60	X-3952-608-1	BRACKET ASSY, AF LASER

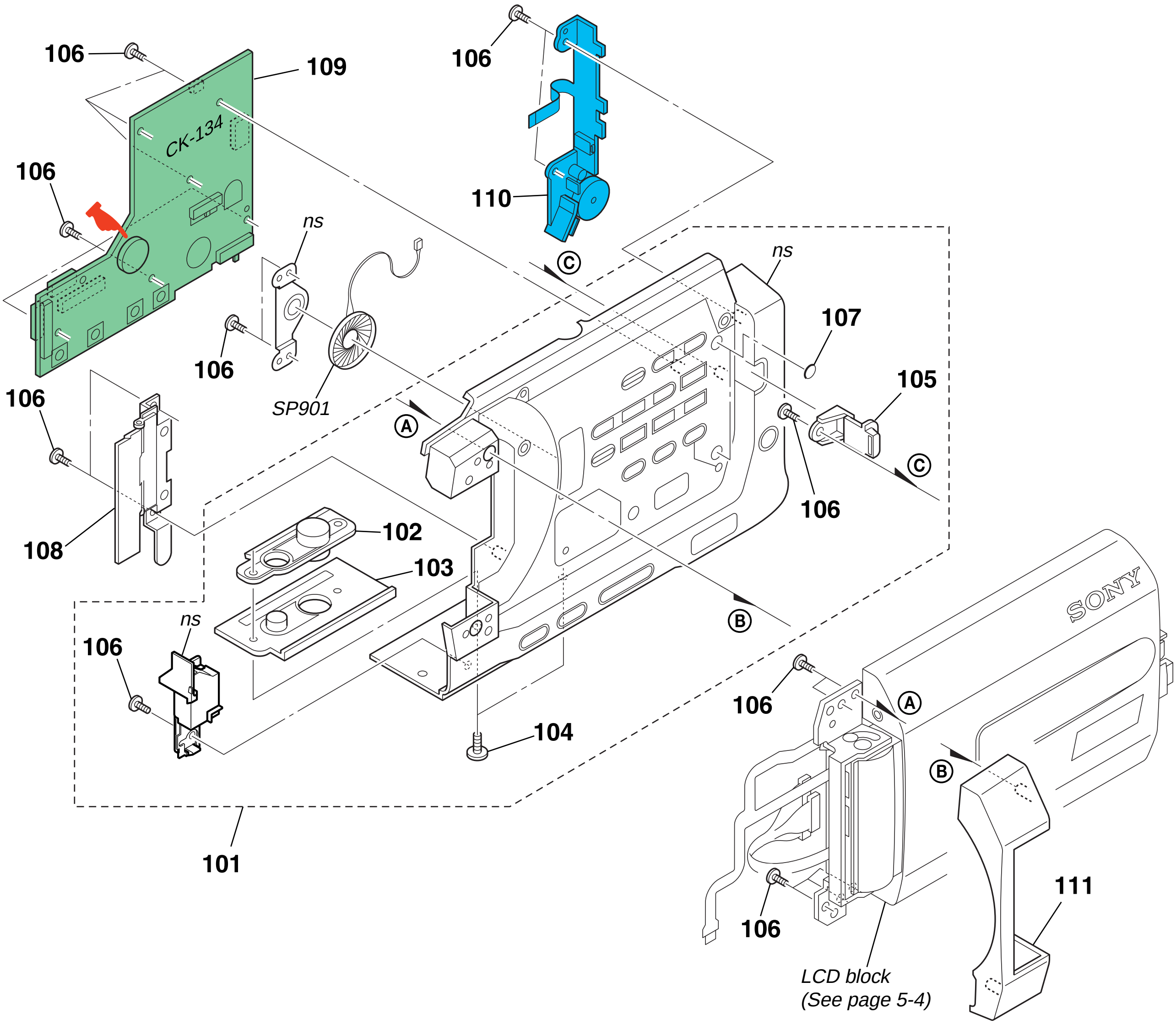
Ref. No.	Part No.	Description
61	1-685-298-12	FP-500 FLEXIBLE
62	3-076-354-01	PLATE (A), MF KNOB RETAINER
63	3-076-353-01	SPRING, MF KNOB RETURN
64	3-076-351-01	RETAINER, MF KNOB
65	3-076-350-02	KNOB, MF
66	3-076-352-01	PLATE, ORNAMENTAL
67	X-3952-595-1	CAP ASSY, LENS
68	X-3952-594-1	HOOD ASSY
⚠D501	1-804-531-11	LASER UNIT
MIC901	1-542-312-11	MICROPHONE (Lch)
MIC902	1-542-312-11	MICROPHONE (Rch)

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1-3. CABINET (R) BLOCK

ns : not supplied


106
109
106
110
CK-134
106
ns
ns
107
105
106
SP901
106
108
102
103
106
ns
104
106
106
101
SONY
111
LCD block
(See page 5-4)
Ⓐ
Ⓑ
Ⓒ

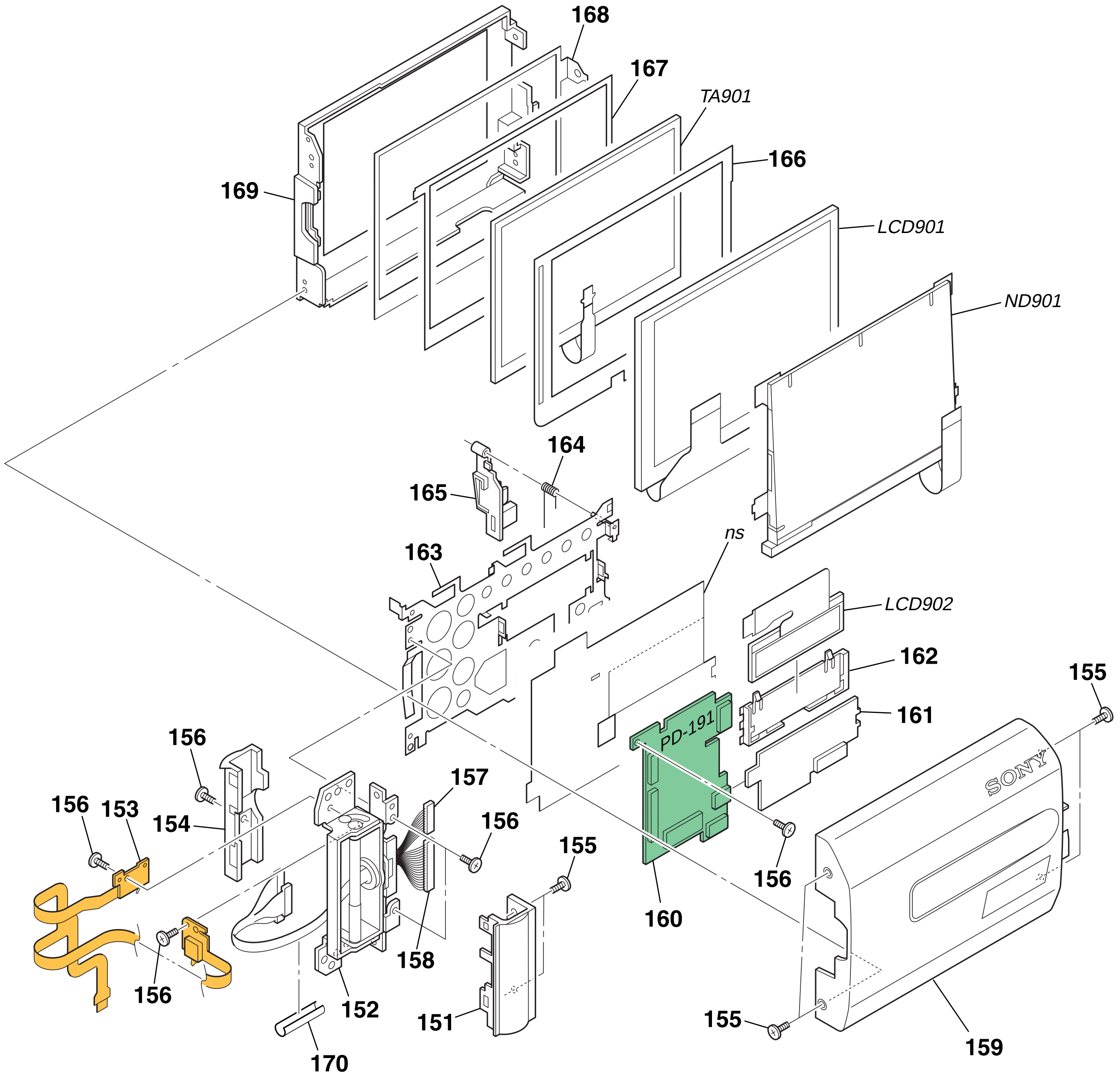
☛ : BT5201 (BATTERY, LITHIUM SECONDARY)
Board on the mount position. (See page 4-105.)

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

Ref. No.	Part No.	Description
101	X-3952-654-1	CABINET (R) ASSY
102	3-051-840-01	SCREW, TRIPOD
103	3-076-305-01	BASE, TRIPOD TABLE
104	3-958-217-01	SCREW (M2)
105	3-076-299-01	CLAW, PANEL LOCK
106	3-989-735-51	SCREW (M1.7), LOCK ACE, P2
107	3-077-269-01	CUSHION, PANEL
108	X-3952-655-1	LID ASSY, HINGE BLIND
109	A-7078-514-A	CK-134 BOARD, COMPLETE
110	1-477-338-11	SWITCH BLOCK, CONTROL (KP1870)
111	3-076-344-11	CABINET (HINGE)
SP901	1-529-857-21	SPEAKER (1.6 CM)

5-1-4. LCD BLOCK

ns : not supplied


168
167
TA901
166
LCD901
ND901
169
164
165
163
ns
LCD902
162
155
161
156
PD-191
SONY
157
156
153
154
156
155
158
156
160
152
151
155
159
170

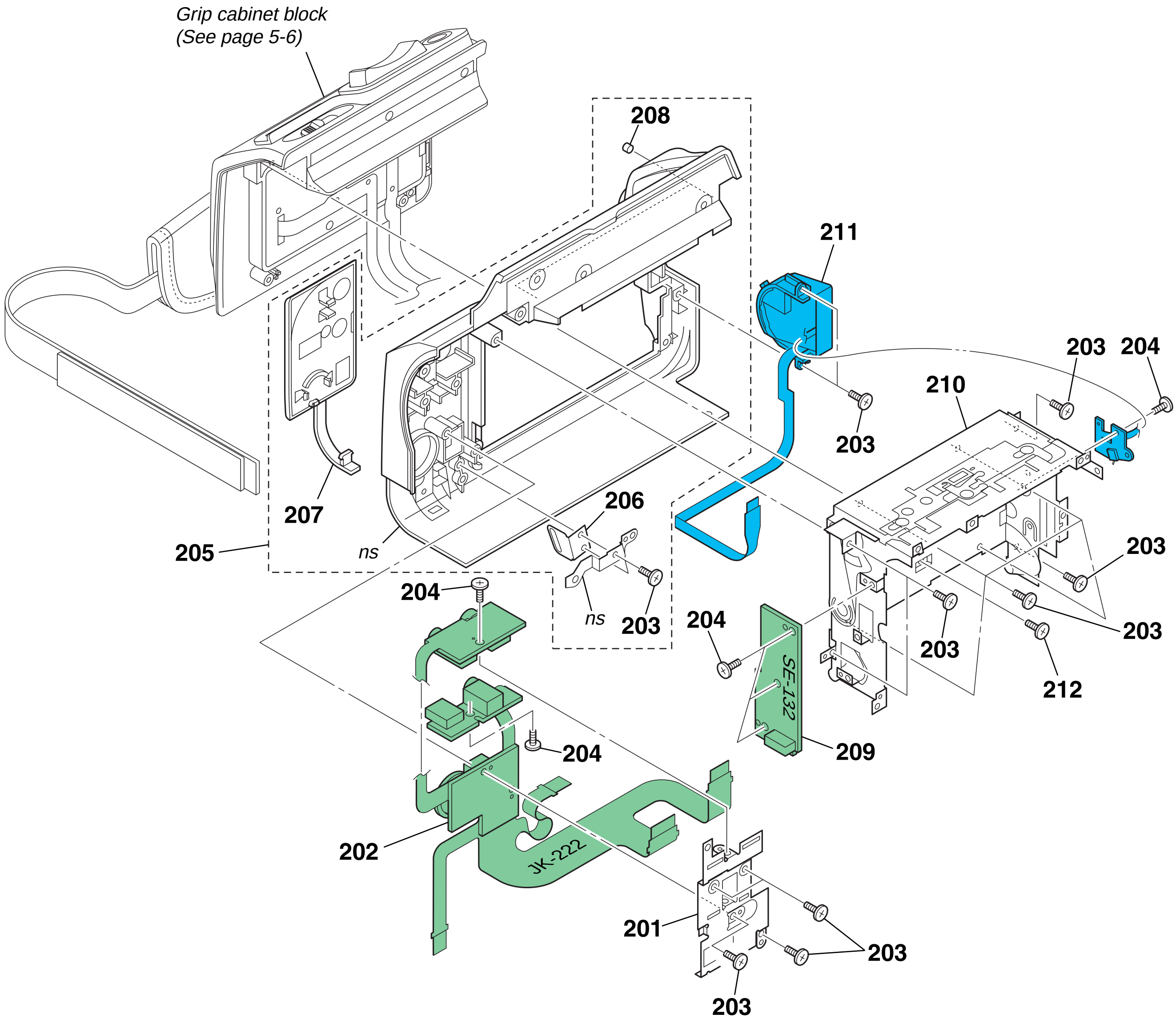
Ref. No.	Part No.	Description
151	3-076-448-11	COVER (FRONT), HINGE
152	X-3952-604-1	HINGE ASSY
153	A-7078-342-A	FP-495 BOARD, COMPLETE
154	3-076-447-11	COVER (REAR), HINGE
155	3-989-735-51	SCREW (M1.7), LOCK ACE, P2
156	4-974-725-01	SCREW (M1.7X2.5), P
157	1-961-814-11	HARNESS (PC-087)
158	1-961-815-11	HARNESS (PC-088)
159	X-3952-653-1	P CABINET (C) ASSY
160	A-7078-516-A	PD-191 BOARD, COMPLETE
⚠161	1-477-187-11	TRANSFORMER UNIT, INVERTER
162	3-055-289-01	HOLDER, LCD

Ref. No.	Part No.	Description
163	X-3952-612-1	FRAME ASSY, P
164	3-076-453-01	SPRING (P), TORSION COIL
165	3-076-449-01	BUTTON, OPEN
166	3-076-451-01	CUSHION (L)
167	3-076-450-01	CUSHION (C)
168	3-076-452-01	PLATE (P), GROUND
169	3-076-446-11	CABINET (M), P
170	3-076-631-01	TAPE (H)
TA901	1-477-189-11	PANEL, TOUCH
⚠ND901	1-518-797-11	TUBE, FLUORESCENT,COLD CATHODE
LCD901	1-804-599-21	INDICATOR MODULE LIQUID CRYST
LCD902	A-7096-726-A	INDICATION LCD BLOCK ASSY

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1-5. CABINET (L) BLOCK

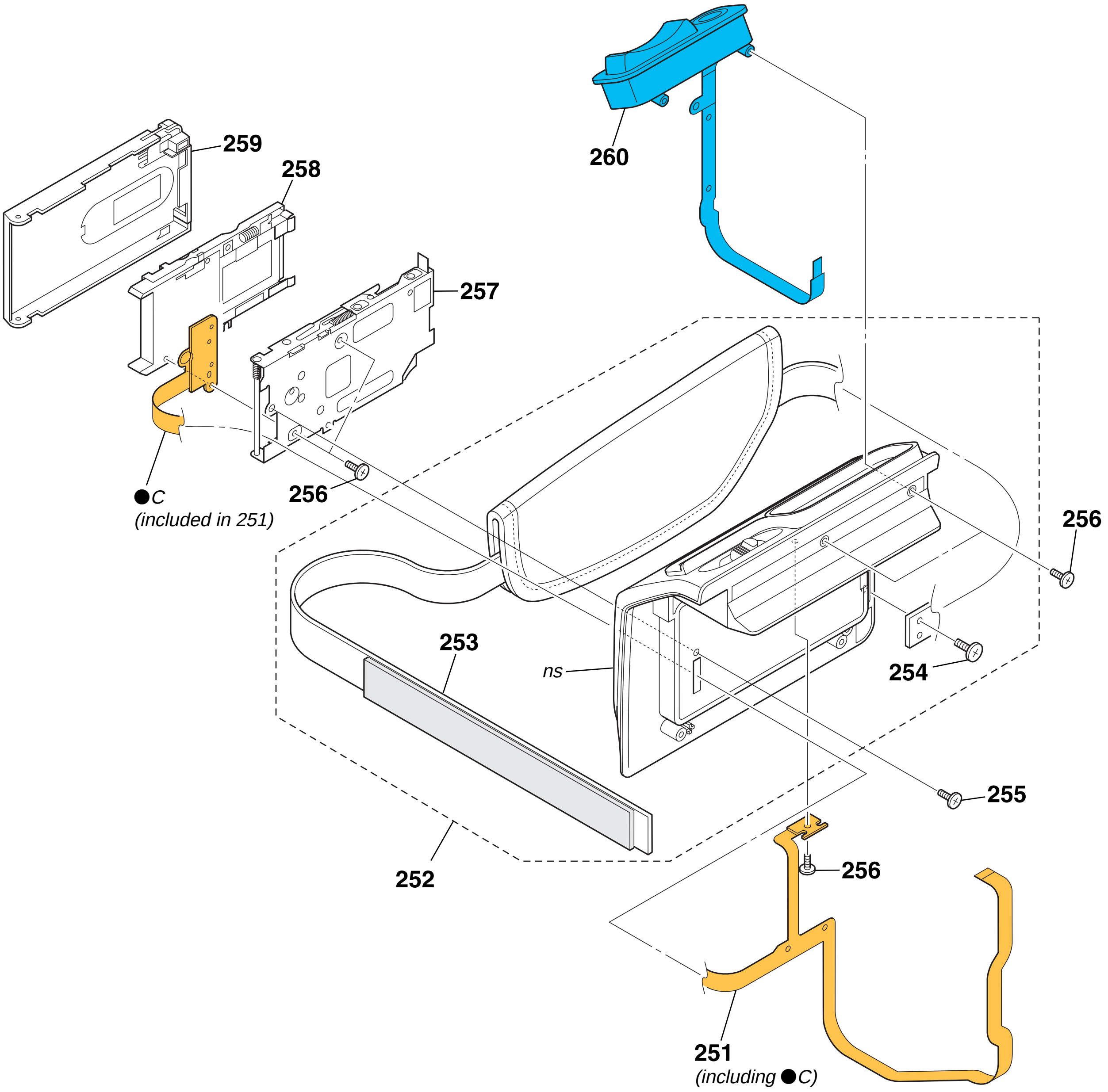
ns : not supplied


Grip cabinet block
(See page 5-6)
208
211
203
204
210
203
207
205
ns
206
203
204
ns
203
204
203
203
212
SE-132
209
204
202
JK-222
201
203
203

Ref. No.	Part No.	Description
201	3-076-343-01	BRACKET, JK
202	A-7078-332-A	JK-222 BOARD, COMPLETE
203	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
204	4-974-725-01	SCREW (M1.7X2.5), P
205	X-3952-652-1	CABINET (L) ASSY
206	3-076-309-01	BRACKET (FRONT), GRIP BELT

Ref. No.	Part No.	Description
207	X-3952-618-1	COVER ASSY, TERMINAL
208	3-077-139-01	CUSHION, (LG)
209	A-7078-339-A	SE-132 BOARD, COMPLETE
210	X-3952-593-1	CS FRAME ASSY
211	1-477-337-33	SWITCH BLOCK, CONTROL (PS1870)
212	3-713-791-01	SCREW (M1.7X4), TAPPING, P2

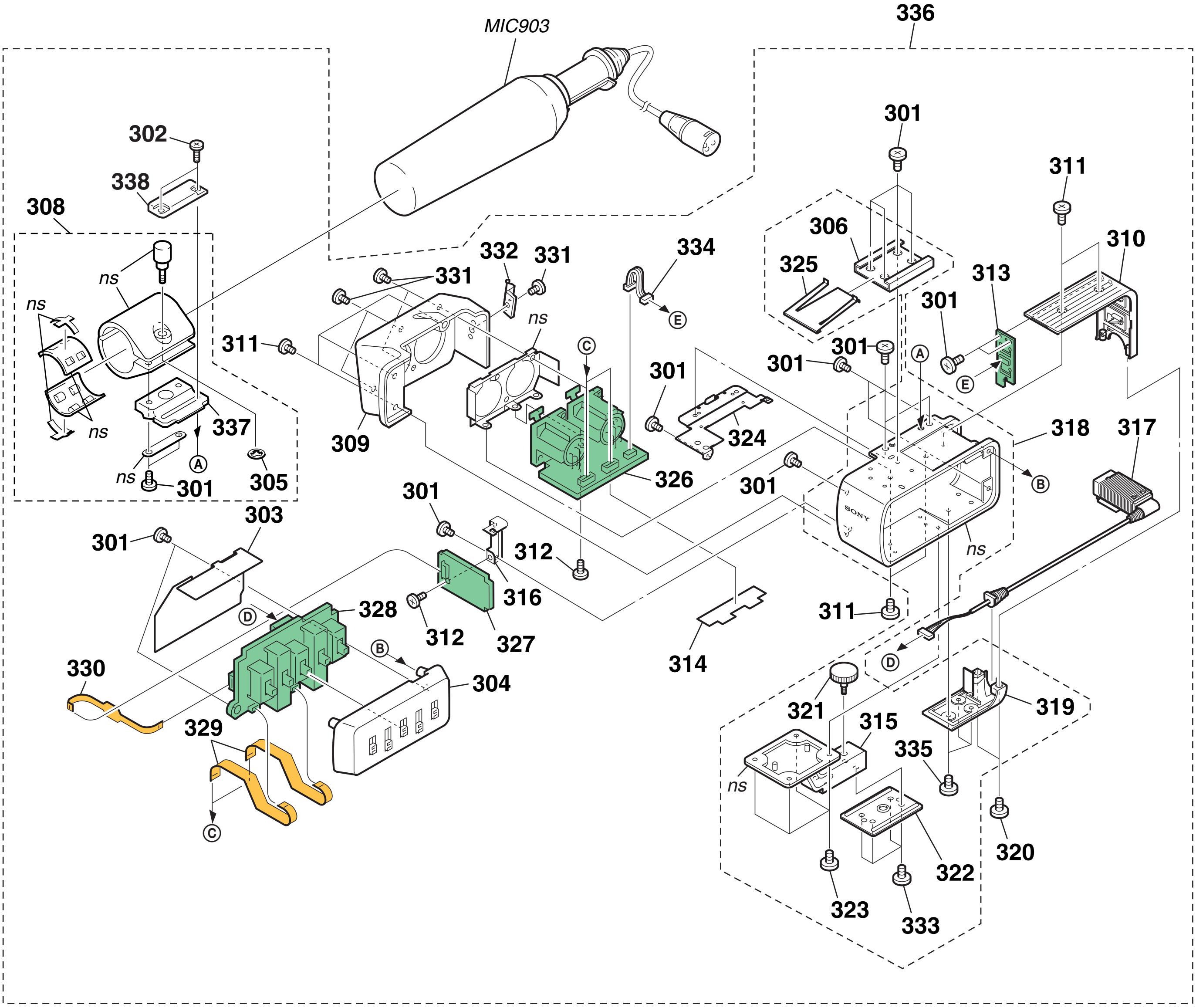
5-1-6. GRIP CABINET BLOCK


259
258
260
257
●C
(included in 251)
256
256
253
ns
254
255
252
256
251
(including ●C)

Ref. No.	Part No.	Description
251	1-685-299-22	FP-503 FLEXIBLE
252	X-3952-660-1	CABINET ASSY, GRIP
253	3-076-322-11	BELT, GRIP
254	3-679-362-11	SCREW
255	4-974-725-01	SCREW (M1.7X2.5), P
256	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
257	X-3952-598-1	CHASSIS ASSY, MS
258	1-785-593-31	CONNECTOR, MEMORY STICK
259	X-3952-624-1	CABINET ASSY, MS
260	1-477-339-22	SWITCH BLOCK, CONTROL (CF1870)

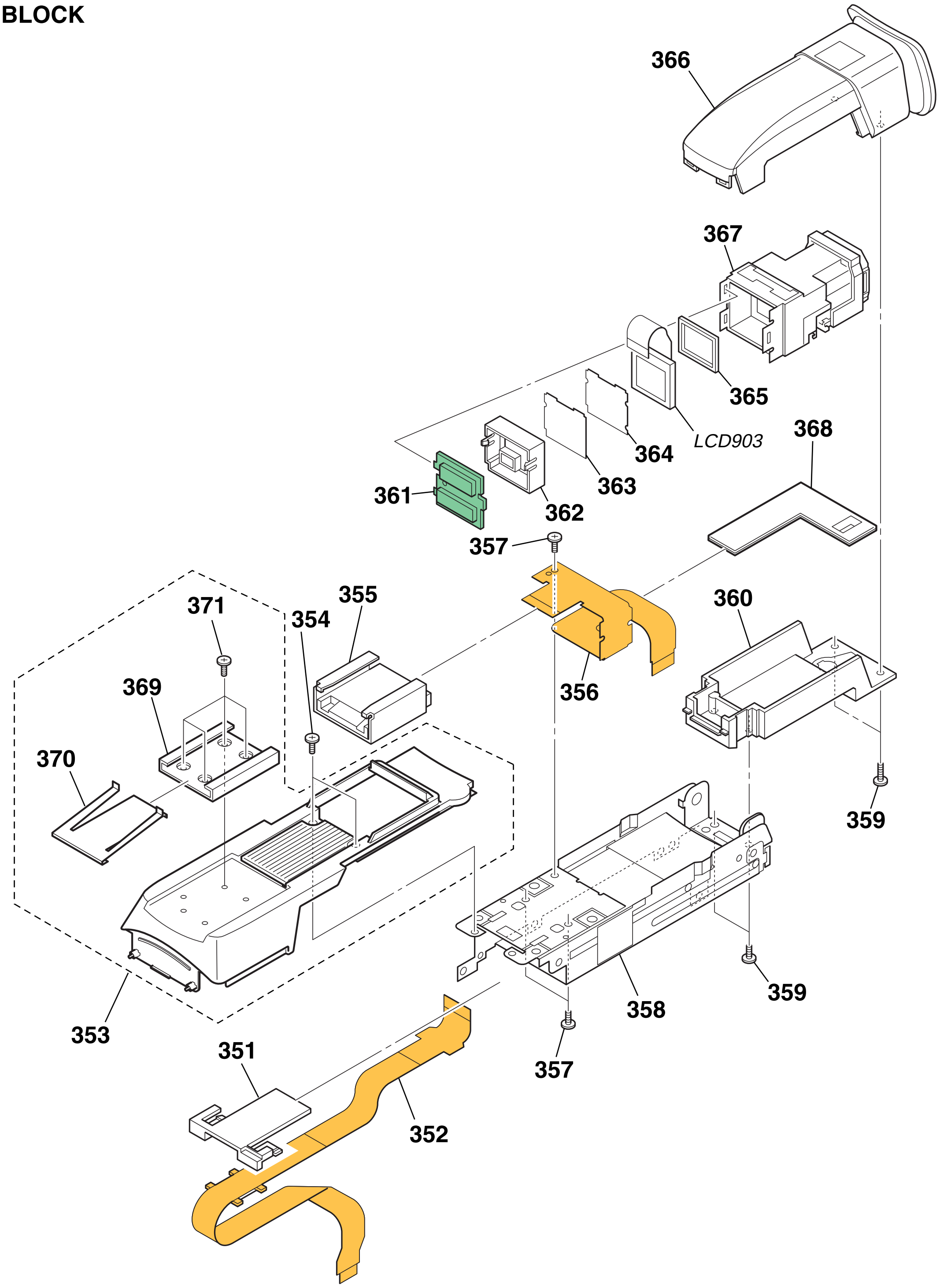
5-1-7. XLR BLOCK

ns : not supplied


MIC903
336
302
338
308
ns
ns
ns
ns
337
A
301
305
301
311
332
331
331
334
E
306
325
311
310
313
301
301
301
A
E
ns
C
309
301
324
326
301
318
317
B
303
301
312
316
D
328
312
327
B
304
330
329
C
314
311
ns
D
321
315
335
319
ns
322
320
323
333

Ref. No.	Part No.	Description
301	3-948-339-61	TAPPING
302	7-682-549-09	SCREW +B 3X10
* 303	3-060-814-01	INSULATED PLATE, SW
304	X-3950-603-3	CABINET (L) ASSY, HANDLE
305	3-165-904-01	WASHER, SCREW STOPPER
306	3-069-286-01	SHOE, ACCESSORY
308	X-3950-604-5	HOLDER ASSY, MICROPHONE
309	3-060-813-02	CABINET (R), HANDLE
310	X-3952-786-1	REAR SUB ASSY, XL CABINET
311	3-968-729-61	SCREW (M2X3), LOCK ACE, P2
312	3-968-729-51	SCREW (M2), LOCK ACE, P2
313	A-7078-396-A	XK-001 (UPD) BOARD, COMPLETE
314	3-063-408-01	SHEET, XLR
315	3-077-771-01	FOOT, XL
* 316	3-060-815-01	BRACKET, DD
317	1-961-918-11	HARNESS (XH-050)
318	X-3952-785-1	CENTER ASSY, XL CABINET
319	3-077-773-01	BOTTOM, XL CABINET
320	3-713-791-71	SCREW (M1.7X4)
321	3-077-767-01	XL KNOB
322	3-077-768-01	XL SHOE PLATE
323	3-945-884-11	SCREW (2X6)
324	3-064-629-01	RETAINER (UPPER) D, HOLDER
325	3-688-754-11	SPRING
326	A-7078-393-A	XM-002 (UPD) BOARD, COMPLETE
327	A-7078-395-A	XD-002 (UPD) BOARD, COMPLETE
328	A-7078-394-A	XS-002 (UPD) BOARD, COMPLETE
329	1-678-052-11	FP-217 FLEXIBLE
330	1-678-053-11	FP-218 FLEXIBLE
331	3-061-062-01	BOLT (M2.6)
* 332	3-678-684-00	HOLDER, CABLE
333	3-053-121-11	BOLT (M2), SPRING
334	1-961-917-11	HARNESS (XK-050)
335	3-053-121-31	BOLT (M2), SPRING
336	A-7013-029-A	XLR BLOCK ASSY
337	3-060-810-01	BASE, MICROPHONE HOLDER
338	3-064-629-01	RETAINER (UPPER) D, HOLDER
MIC903	8-814-298-90	MICROPHONE ECM-NV1

5-1-8. EVF BLOCK


366
367
365
LCD903
368
364
363
362
361
357
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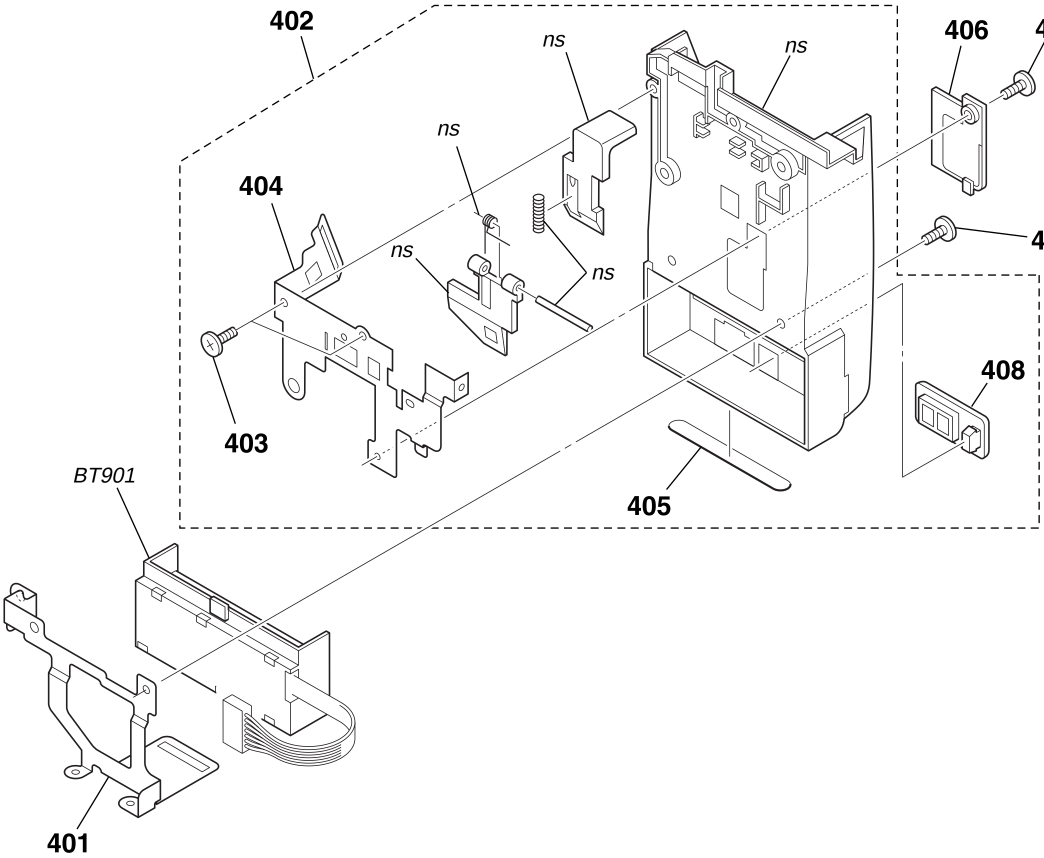
371
369
370
360
356
359
353
358
359
351
357
352

Ref. No.	Part No.	Description
351	3-076-345-01	HOLDER, VF FLEXIBLE
352	1-685-301-12	FP-547 FLEXIBLE
353	X-3952-787-1	CABINET ASSY, TOP
354	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
355	1-815-124-11	CONNECTOR, EXTERNAL (HOT SHOE)
356	A-7078-344-A	FP-497 BOARD, COMPLETE
357	4-974-725-01	SCREW (M1.7X2.5), P
358	X-3952-600-2	BASE ASSY, EVF
359	3-713-791-31	SCREW (M1.7X6), TAPPING, P2
360	X-3952-784-1	VF CABINET (LOWER) ASSY
361	A-7078-399-A	LB-089 (UPD) BOARD, COMPLETE
362	3-072-214-01	GUIDE (20), LAMP
363	3-072-211-01	ILLUMINATOR
364	3-072-210-01	SHEET, PRISM
365	3-059-734-01	CUSHION (1), LCD
366	X-3952-783-1	VF CABINET (UPPER) ASSY
367	X-3952-616-1	LENS ASSY, VF
368	3-077-288-01	SHEET(C), COPY
369	3-069-286-01	SHOE, ACCESSORY
370	3-688-754-11	SPRING
371	3-968-729-11	SCREW (M2), LOCK ACE, P2
BT901	1-694-772-11	TERMINAL BOARD, BATTERY
LCD903	8-753-028-56	LCX033AP-1

5-1-9. BATTERY PANEL BLOCK

ns : not supplied


402
404
403
BT901
401
ns
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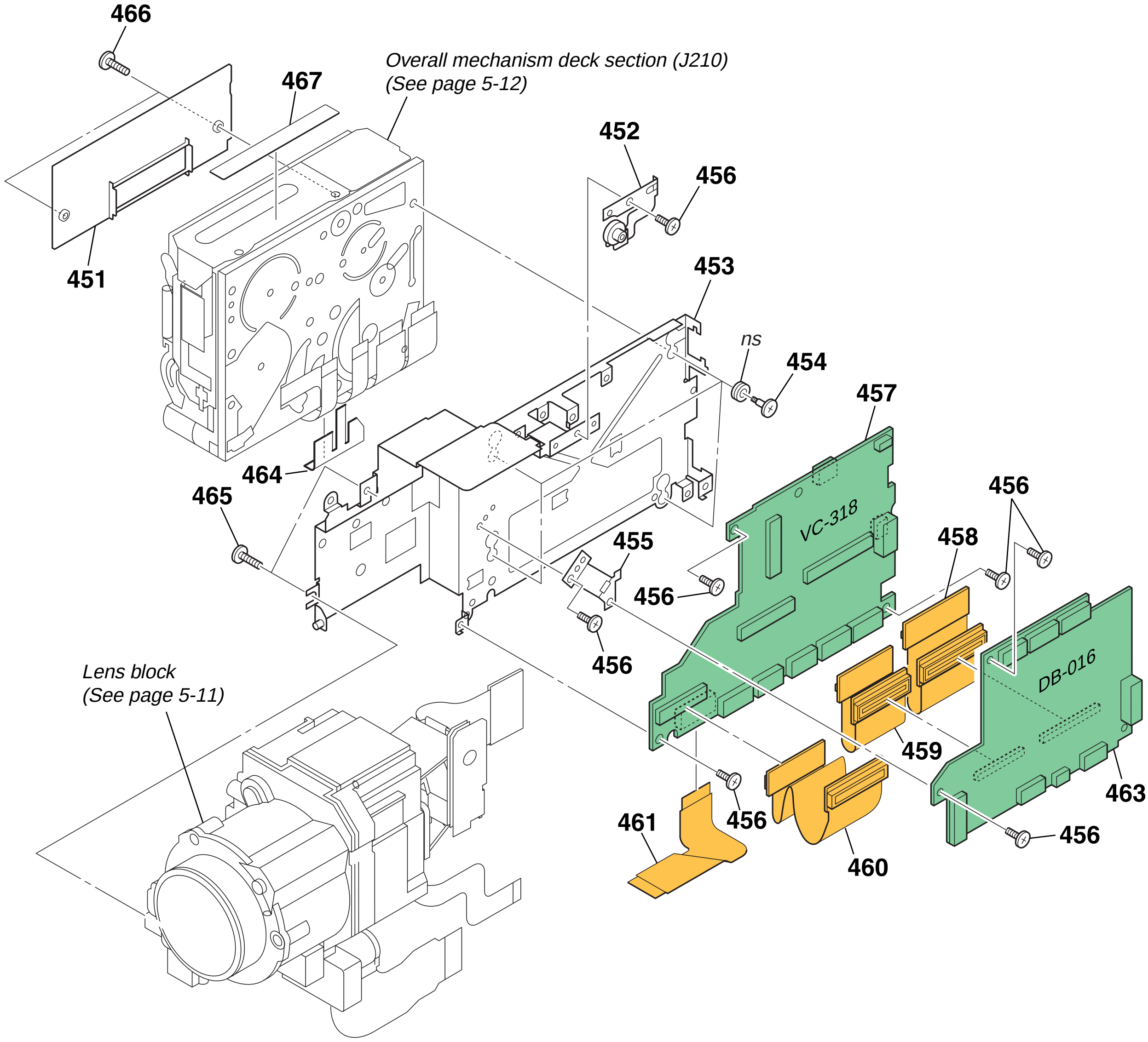
ns
ns
ns
405
406
407
407
408

Ref. No.	Part No.	Description
401	3-076-245-01	BRACKET (LOWER), STRAP
402	X-3952-603-1	PANEL ASSY, BATTERY
403	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
404	3-076-335-01	BRACKET (UPPER), STRAP
405	3-076-337-01	FOOT, RUBBER
406	3-076-239-01	LID, CPC
407	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
408	3-065-290-11	LID, JACK
BT901	1-694-772-11	TERMINAL BOARD, BATTERY

5-1-10. MD BLOCK

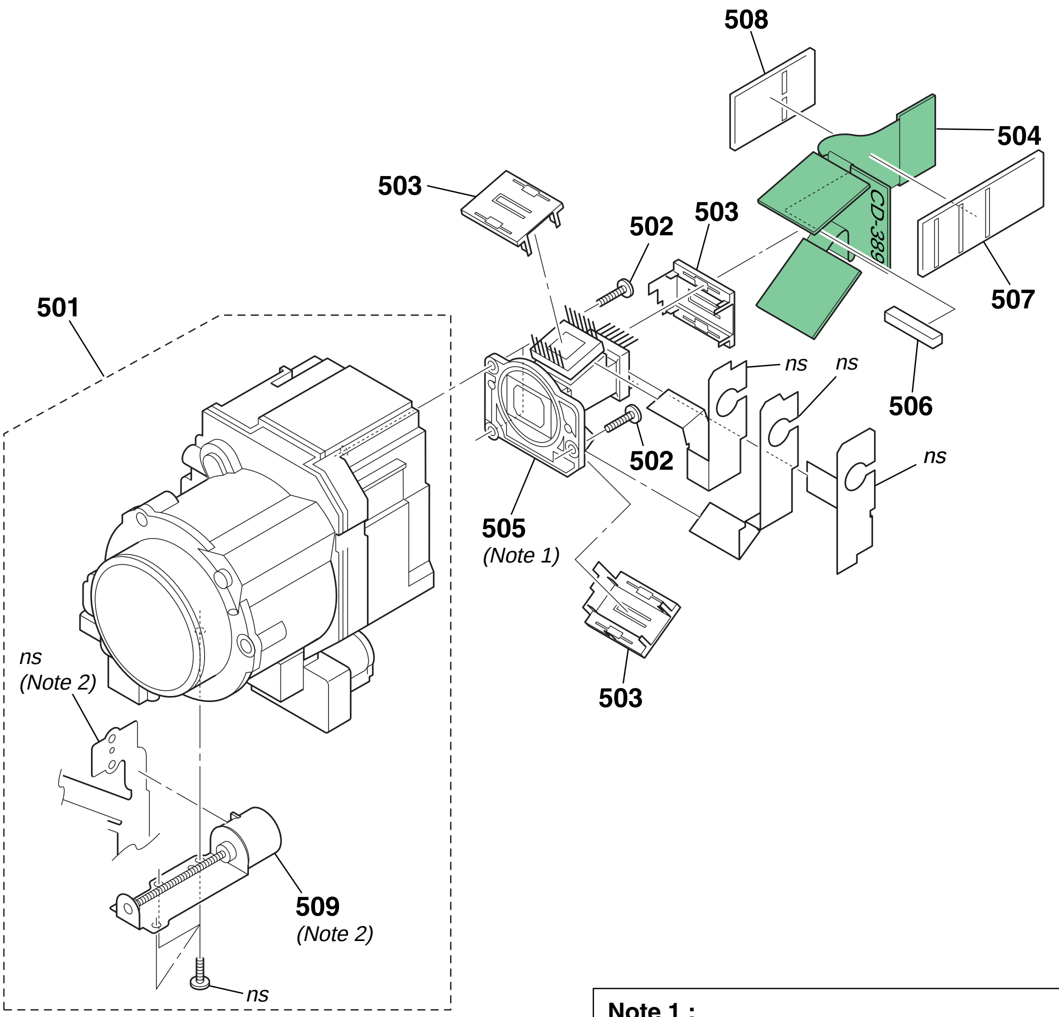
ns : not supplied


466
467
Overall mechanism deck section (J210)
(See page 5-12)
452
456
451
453
ns
454
457
464
465
VC-318
456
458
455
456
456
DB-016
Lens block
(See page 5-11)
459
463
461
456
456
460

Ref. No.	Part No.	Description
451	3-059-722-01	COVER, CASSETTE COMPARTMENT
452	X-3952-662-1	BRACKET ASSY, HEAT SINK
453	X-3952-599-1	FRAME ASSY, MD
454	3-059-718-01	SCREW (M1.4X1.5)
455	3-076-338-01	BRACKET, DB
456	4-974-725-01	SCREW (M1.7X2.5), P
457	A-7078-397-A	VC-318 (UDN) BOARD, COMPLETE (SERVICE) (PDX10)
457	A-7078-400-A	VC-318 (UDP) BOARD, COMPLETE (SERVICE) (PDX10P)
458	A-7078-345-A	FP-498 BOARD, COMPLETE
459	A-7078-346-A	FP-499 BOARD, COMPLETE
460	A-7078-343-A	FP-496 BOARD, COMPLETE
461	1-685-292-12	FP-494 FLEXIBLE
463	A-7078-398-A	DB-016 (UDN) BOARD, COMPLETE (SERVICE) (PDX10)
463	A-7078-401-A	DB-016 (UDP) BOARD, COMPLETE (SERVICE) (PDX10P)
464	3-070-940-01	TAPE (3), DF
465	3-948-339-01	SCREW, TAPPING
466	3-989-735-01	SCREW (M1.7), LOCK ACE, P2
467	3-059-725-01	LABEL, LS

5-1-11. LENS BLOCK

ns : not supplied


508
504
503
502
503
CD-389
507
501
ns
ns
506
502
ns
505
(Note 1)
503
ns
(Note 2)
509
(Note 2)
ns

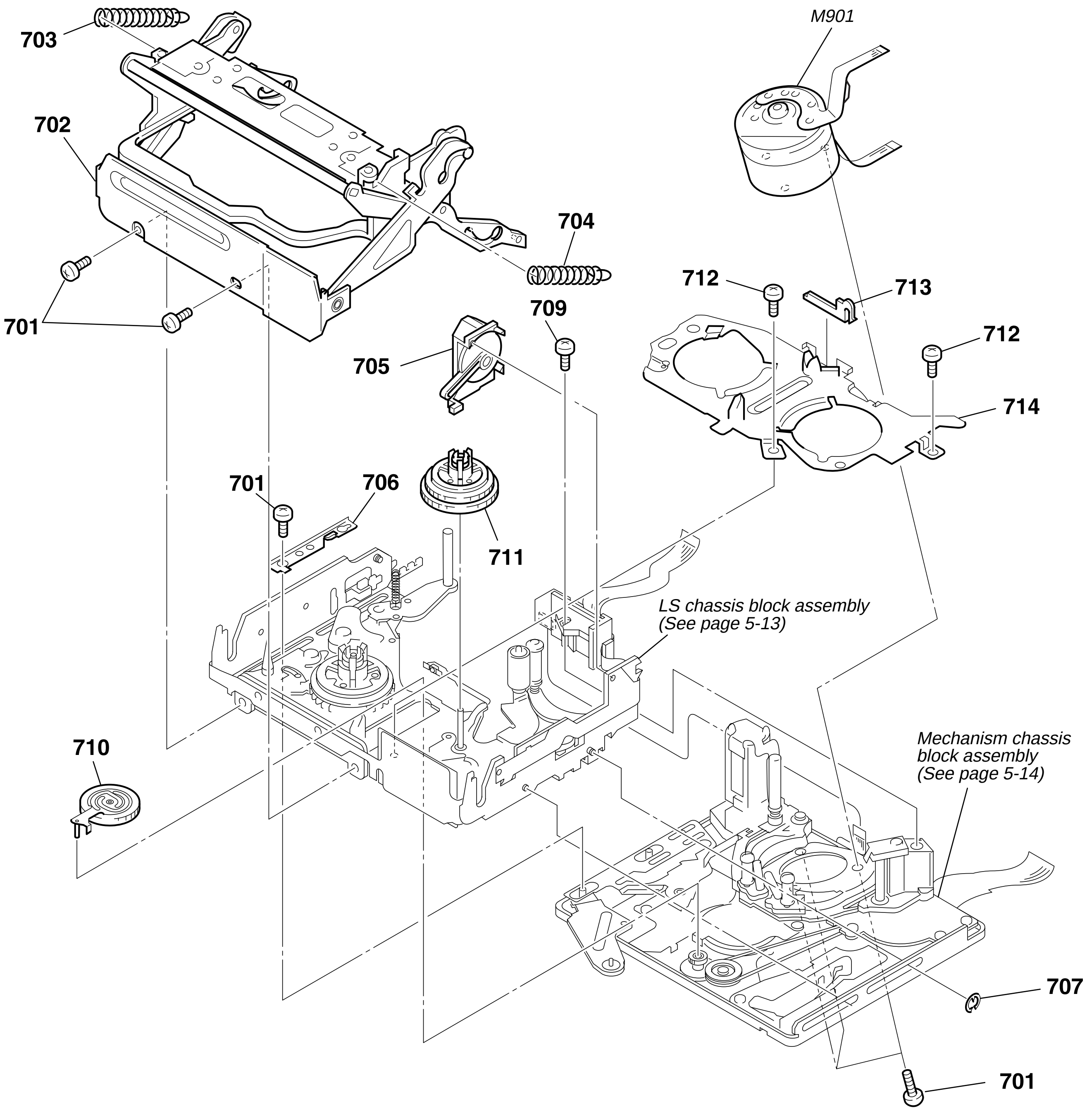
Note 1 :
Be sure to read "Precuations for Replacement of CCD Imager" on page 4-12 when changing the prism block.

Note 2 :
Replace only with the same or equivalent type. Flexible board of video lens is not supplied. Please be careful not to break the flexible board when you change the motor unit.

Ref. No.	Part No.	Description
501	1-758-757-11	LENS, VIDEO (B144A)
502	3-713-791-61	SCREW (M1.7X7), TAPPING, P2
503	3-076-331-01	COVER (A), CCD
504	A-7078-335-A	CD-389 BOARD, COMPLETE
505	A-7012-866-A	PRISM BLOCK (ZGDSY2) (FOR SERVICE)

Ref. No.	Part No.	Description
506	3-053-354-01	CUSHION, CD FLEXIBLE
507	3-077-290-01	SHEET (E), COPY
508	3-077-291-01	SHEET (F), COPY
509	3-709-679-01	MOTOR, ZOOM
M801	3-709-679-01	MOTOR, ZOOM

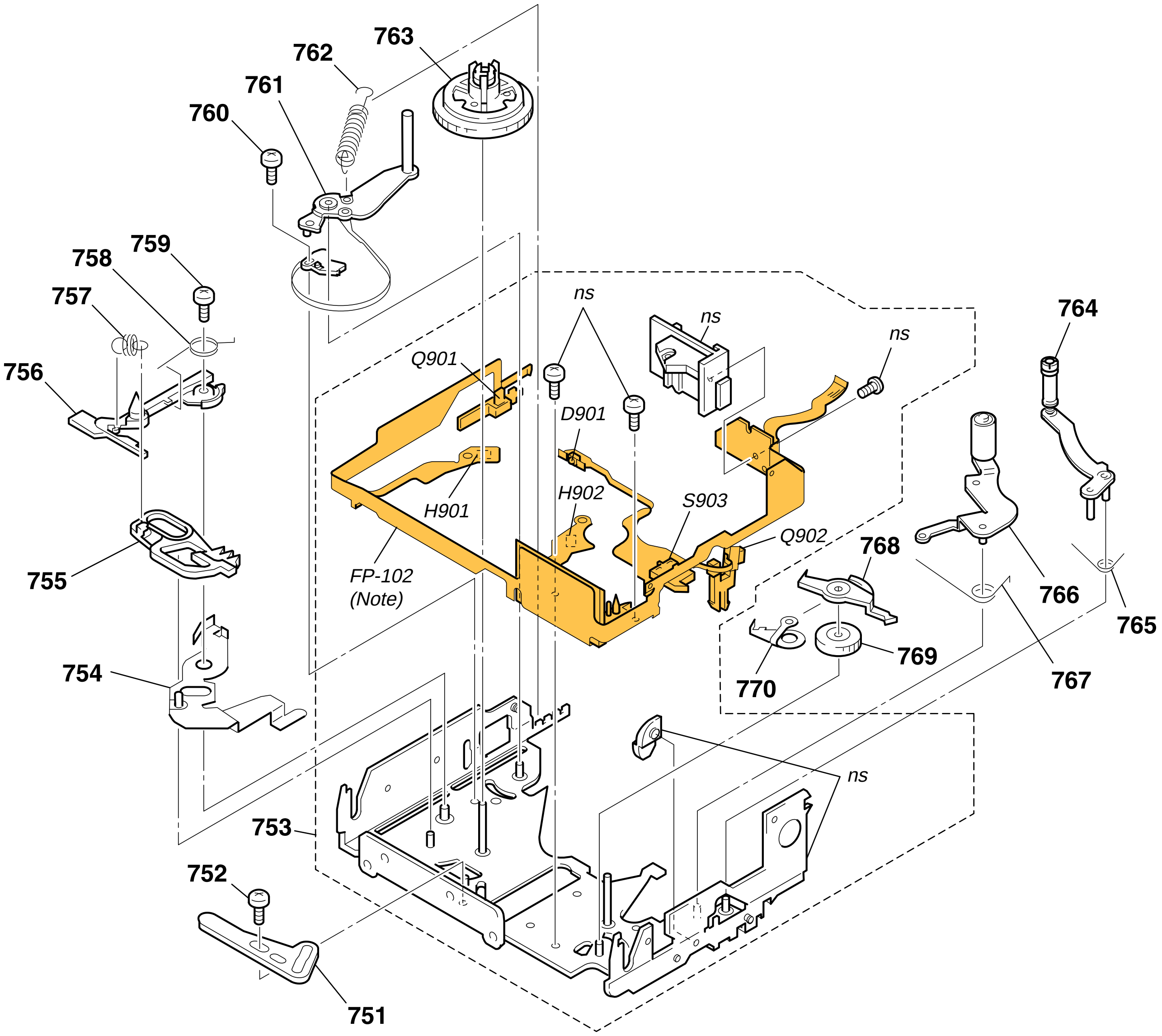
5-1-12. OVERALL MECHANISM DECK SECTION (J210)


703
M901
702
704
712
713
709
701
712
705
714
701
706
711
LS chassis block assembly
(See page 5-13)
710
Mechanism chassis
block assembly
(See page 5-14)
707
701

Ref. No.	Part No.	Description
701	3-703-816-14	SCREW (M1.4)
702	X-3952-017-3	CASSETTE COMPARTMENT ASSY
703	3-059-082-01	SPRING, TENSION
704	3-059-208-01	SPRING(CASSETTE COMPARTMENT T)
705	X-3950-370-3	DAMPER ASSY
706	3-059-101-03	RETAINER, LS GUIDE
707	7-624-102-04	STOP RING 1.5, TYPE -E
709	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
710	X-3950-364-1	GEAR ASSY, GOOSENECK
711	X-3950-366-1	TABLE ASSY, T REEL
712	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
713	3-059-093-01	RETAINER, LED
714	X-3950-361-1	PLATE ASSY, RETAINER
M901	A-7048-970-A	DRUM MOTOR (DEH-23A)

5-1-13. LS CHASSIS BLOCK ASSEMBLY

ns : not supplied



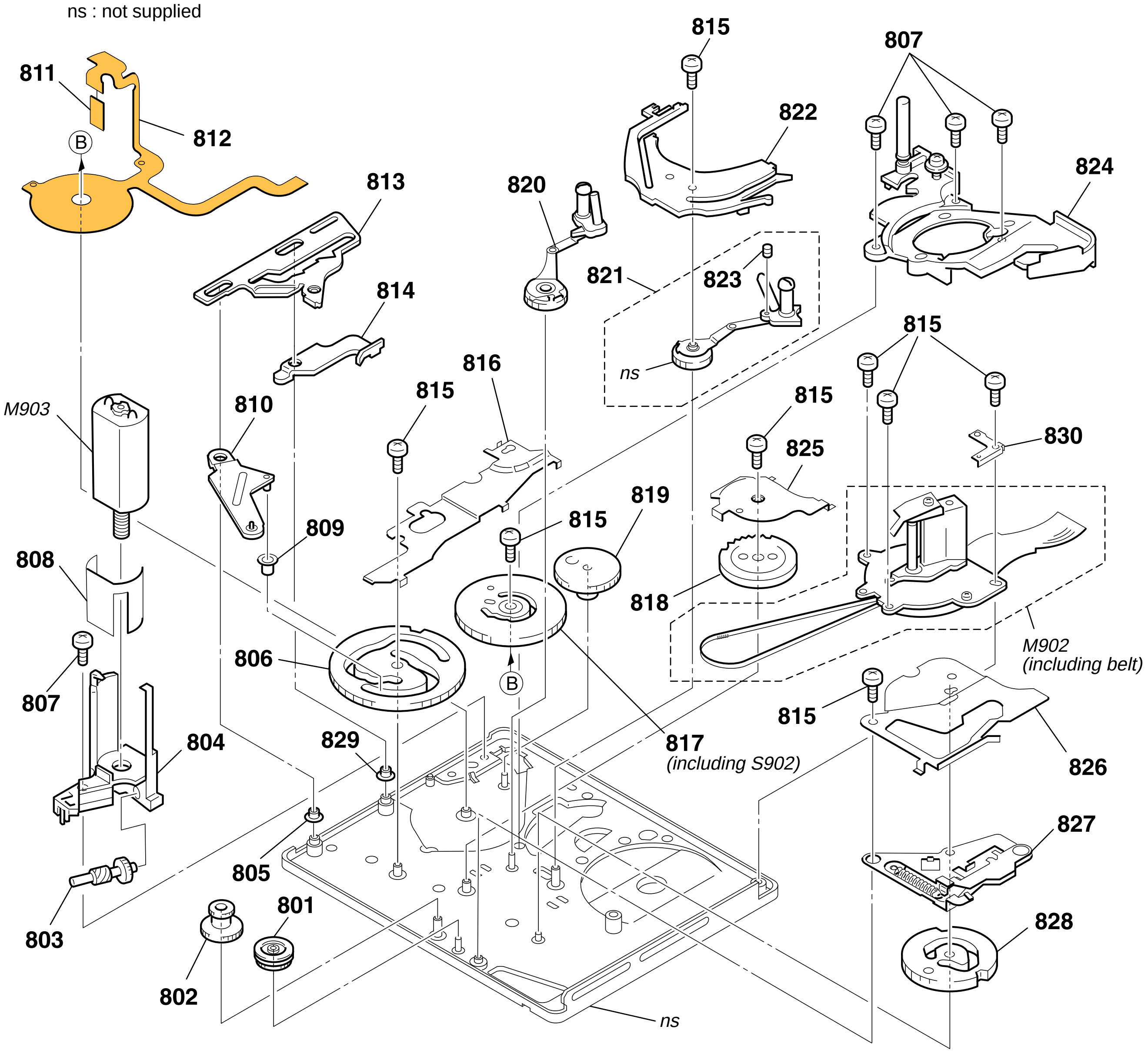
Note: *FP-102 is included in the LS sub assy and is attached to chassis by hot-press. Because installation of FP-102 requires a very high accuracy, FP-102 is not supplied as an independent service parts.*

Ref. No.	Part No.	Description
751	3-059-173-01	PLATE, LS CAM
752	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
753	A-7094-816-B	LS BLOCK ASSY
754	X-3950-371-1	ARM ASSY, BRAKE (S) DRIVING
755	3-059-166-02	BRAKE (S)
756	3-059-146-01	POSITIONING (S), CASSETTE
757	3-059-167-01	SPRING (BRAKE S), TENSION COIL
758	3-059-169-01	SPRING (BRAKE S ARM), TORSION
759	3-703-816-14	SCREW (M1.4)
760	3-059-090-01	SCREW (M1.4X2.5), SPECIAL HEAD
* 761	X-3950-358-4	TG1 ASSY
762	3-059-156-01	SPRING (TENSION REGULATOR)
763	X-3950-365-2	TABLE ASSY, S REEL

Ref. No.	Part No.	Description
764	A-7094-819-A	TG7 BLOCK ASSY
765	3-059-165-01	SPRING (TG7 RETURN), TORSION
766	X-3950-359-1	ARM ASSY, PINCH
767	3-059-161-01	SPRING (PINCH RETURN), TORSION
768	3-059-170-01	BRAKE (T)
769	3-059-171-01	GEAR (T), BRAKE
770	3-059-172-01	SPRING (T), BRAKE
D901	8-719-078-71	DIODE LN57A.SO (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
Q901	8-729-028-71	TRANSISTOR PN166.SO (TAPE END)
Q902	8-729-028-71	TRANSISTOR PN166.SO (TAPE TOP)
S903	1-572-288-11	SWITCH, PUSH (CC DOWN)

5-1-14. MECHANISM CHASSIS BLOCK ASSEMBLY

ns : not supplied


815
807
811
812
B
822
824
813
820
821
823
814
815
816
815
ns
M903
810
815
825
830
819
815
809
808
818
806
B
M902
(including belt)
807
815
804
829
817
(including S902)
826
827
805
801
803
828
802
ns

Ref. No.	Part No.	Description
801	3-059-211-01	GEAR, CONVERSION
802	3-059-220-01	GEAR, RELAY
803	3-059-187-01	SHAFT, WORM
804	3-059-186-02	HOLDER, MOTOR
805	3-060-002-01	ROLLER, LS GUIDE
806	3-059-189-01	GEAR (A), CAM
807	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
808	3-059-225-01	SHIELD, MOTOR
809	3-059-191-01	ROLLER, LS
810	3-059-190-01	ARM, LS
811	1-677-049-11	FP-228 FLEXIBLE
812	1-677-084-11	FP-100 FLEXIBLE
813	3-059-149-01	SLIDER, TG1 CAM
814	3-059-148-01	ARM, TG1 DRIVING
815	3-703-816-14	SCREW (M1.4)
816	3-059-117-01	COVER (A), GEAR
817	X-3950-367-1	GEAR ASSY, MODE
818	3-059-139-01	GEAR, GL DRIVING
819	3-059-188-01	GEAR, DECELERATION
820	A-7094-818-A	COASTER (S) BLOCK ASSY
821	A-7094-817-A	COASTER (T) BLOCK ASSY
822	3-059-126-01	RAIL, GUIDE
823	3-962-914-01	SCREW (M1.4X2)
824	A-7094-822-A	DRUM BASE BLOCK ASSY
825	3-059-118-01	COVER (B), GEAR
826	3-059-083-01	COVER (C), GEAR
827	X-3950-368-1	ARM ASSY, PINCH DRIVING
828	3-059-192-01	GEAR (B), CAM
829	3-063-355-01	ROLLER (S1), LS GUIDE
830	3-065-202-01	SUPPORT, TG7
M902	8-835-685-01	MOTOR, DC SCD18A/C-NP (CAPSTAN)
M903	A-7094-823-A	MOTOR BLOCK ASSY, L (LOADING)

5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- COILS
  uH: μH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- Abbreviation
  CND : Canadian model

Ref. No.	Part No.	Description			
	A-7078-335-A	CD-389 BOARD, COMPLETE **********************			
		(IC100,101 and 105 are not included in this complete board.)			
		< CAPACITOR >			
C102	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C103	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C104	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C105	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C106	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C111	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C112	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C113	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C114	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C115	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C117	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C118	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C119	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C120	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C121	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C122	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C123	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C125	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C126	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C127	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C128	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C129	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C130	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C131	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
		< CONNECTOR >			
CN100	1-784-938-21	CONNECTOR, BOARD TO BOARD 60P			
		< IC >			
IC100	A-7012-866-A	PRISM BLOCK(ZGDSY2)(CCD IMAGER)(SERVICE)			
IC101	A-7012-866-A	PRISM BLOCK(ZGDSY2)(CCD IMAGER)(SERVICE)			
IC102	6-701-755-01	IC AD80017AJRURL			
IC103	6-701-755-01	IC AD80017AJRURL			
IC104	6-701-755-01	IC AD80017AJRURL			
IC105	A-7012-866-A	PRISM BLOCK(ZGDSY2)(CCD IMAGER)(SERVICE)			

Be sure to read "Precautions upon replacing CCD imager" on page 4-12 when changing the CCD imager.

Ref. No.	Part No.	Description			
		< COIL >			
L100	1-469-058-11	INDUCTOR	22uH		
L101	1-469-525-91	INDUCTOR	10uH		
L102	1-469-525-91	INDUCTOR	10uH		
L103	1-469-058-11	INDUCTOR	22uH		
L104	1-469-058-11	INDUCTOR	22uH		
L105	1-469-525-91	INDUCTOR	10uH		
		< TRANSISTOR >			
Q100	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q101	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
Q102	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO		
		< RESISTOR >			
R100	1-218-990-11	SHORT CHIP	0		
R101	1-218-990-11	SHORT CHIP	0		
R102	1-218-990-11	SHORT CHIP	0		
R103	1-218-990-11	SHORT CHIP	0		
R104	1-218-990-11	SHORT CHIP	0		
R105	1-218-990-11	SHORT CHIP	0		
R106	1-218-941-81	RES-CHIP	100	5%	1/16W
R107	1-218-941-81	RES-CHIP	100	5%	1/16W
R108	1-218-941-81	RES-CHIP	100	5%	1/16W
R109	1-218-990-11	SHORT CHIP	0		
R110	1-218-990-11	SHORT CHIP	0		
R111	1-218-990-11	SHORT CHIP	0		

	A-7078-514-A	CK-134 BOARD, COMPLETE **********************			
		< BATTERY >			
BT5201	1-756-128-11	BATTERY, LITHIUM (SECONDARY)			
		< CAPACITOR >			
C5201	1-135-957-91	TANTAL. CHIP	10uF	20%	16V
C5202	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN5201	1-794-997-11	PIN, CONNECTOR 20P			
CN5202	1-816-463-11	PIN, CONNECTOR (PC BOARD) 10P			
CN5203	1-784-938-21	CONNECTOR, BOARD TO BOARD 60P			
CN5204	1-794-375-21	PIN, CONNECTOR 2P			
CN5205	1-816-684-11	CONNECTOR, FFC/FPC (ZIF) 8P			
CN5206	1-766-336-21	CONNECTOR, FFC/FPC 6P			

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

CK-134 **DB-016**

Ref. No.	Part No.	Description			
		< DIODE >			
D5201	8-719-056-61	DIODE	MAZS082008SO		
D5202	8-719-062-16	DIODE	01ZA8.2(TPL3)		
D5203	8-719-062-16	DIODE	01ZA8.2(TPL3)		
D5204	8-719-056-61	DIODE	MAZS082008SO		
D5205	8-719-062-16	DIODE	01ZA8.2(TPL3)		
D5206	8-719-062-16	DIODE	01ZA8.2(TPL3)		
D5207	8-719-062-16	DIODE	01ZA8.2(TPL3)		
D5208	8-719-062-16	DIODE	01ZA8.2(TPL3)		
D5209	8-719-062-16	DIODE	01ZA8.2(TPL3)		
		< COIL >			
L5201	1-419-387-21	INDUCTOR	100uH		
L5202	1-419-387-21	INDUCTOR	100uH		
L5203	1-419-387-21	INDUCTOR	100uH		
L5204	1-419-387-21	INDUCTOR	100uH		
		< RESISTOR >			
R5208	1-218-990-11	SHORT CHIP	0		
R5209	1-218-990-11	SHORT CHIP	0		
R5210	1-218-990-11	SHORT CHIP	0		
R5211	1-218-990-11	SHORT CHIP	0		
R5212	1-218-990-11	SHORT CHIP	0		
R5213	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5214	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5215	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5216	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5217	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5218	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5219	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5220	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R5221	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5222	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5223	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5224	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5225	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5226	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5227	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5228	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5229	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R5230	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5231	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5232	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5233	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5234	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R5235	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5236	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5237	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5238	1-218-970-11	RES-CHIP	27K	5%	1/16W
R5239	1-218-990-11	SHORT CHIP	0		
R5240	1-218-990-11	SHORT CHIP	0		
R5243	1-218-949-11	RES-CHIP	470	5%	1/16W
R5244	1-218-990-11	SHORT CHIP	0		
		< SWITCH >			
S5116	1-771-138-82	SWITCH, KEY BOARD (DISPLAY/TOUCH PANEL)			
S5201	1-572-342-11	SWITCH, SLIDE (AUTO LOCK/AUTO LOCK RELEASE/HOLD)			
S5202	1-762-648-21	SWITCH, SLIDE (ZEBRA OFF/70/100)			
S5203	1-771-138-82	SWITCH, KEY BOARD (TC/U-BIT)			
S5204	1-571-787-31	SWITCH, TACTILE (EDITSEARCH-)			
S5205	1-571-787-31	SWITCH, TACTILE (EDITSEARCH+)			
S5206	1-771-138-82	SWITCH, KEY BOARD (STOP)			
S5207	1-771-138-82	SWITCH, KEY BOARD (REW)			
S5208	1-771-138-82	SWITCH, KEY BOARD (PLAY)			
S5209	1-771-138-82	SWITCH, KEY BOARD (FF)			
S5210	1-771-138-82	SWITCH, KEY BOARD (PAUSE)			
S5211	1-771-138-82	SWITCH, KEY BOARD (REC)			
S5212	1-771-138-82	SWITCH, KEY BOARD (REC)			
S5213	1-771-138-82	SWITCH, KEY BOARD (BARS)			
S5214	1-771-138-82	SWITCH, KEY BOARD (VOLUME+)			
S5215	1-771-138-82	SWITCH, KEY BOARD (VOLUME-)			
S5217	1-771-138-82	SWITCH, KEY BOARD (AUDIO DUB)			
S5218	1-571-787-31	SWITCH, TACTILE (BACK LIGHT)			
S5219	1-571-787-31	SWITCH, TACTILE (SPOT LIGHT)			
S5220	1-771-138-82	SWITCH, KEY BOARD (CUSTOM PRESET)			
S5221	1-771-138-82	SWITCH, KEY BOARD (RESET)			

Ref. No.	Part No.	Description			
	A-7078-398-A	DB-016 (UDN) BOARD, COMPLETE (SERVICE) (PDX10)			
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	A-7078-401-A	DB-016 (UDP) BOARD, COMPLETE (SERVICE) (PDX10P)			
		***************************************			
		< CAPACITOR >			
C1501	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C1503	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C1504	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C1506	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C1507	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C1508	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C1509	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C1510	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1511	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1512	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C1516	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C1517	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C1518	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C1519	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C1520	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1521	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C1522	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1523	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1524	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C3401	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3402	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3403	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C3404	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C3405	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C3406	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3407	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C3408	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C3409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3410	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3411	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3412	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3413	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3414	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C3415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C3416	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			
C3417	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3418	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3419	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C3420	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C3421	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3422	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3423	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3424	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C3428	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C3429	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C3430	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C3431	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C3434	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3436	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3437	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3439	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3441	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C3442	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C3443	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C3445	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C3447	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3449	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C3450	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3451	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C3452	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3453	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C3454	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C3455	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3456	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3457	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C4201	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C4202	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4205	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4208	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4209	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C4210	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4211	1-100-502-11	TANTAL. CHIP	3.3uF	20%	25V
C4212	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C4213	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C4214	1-164-862-11	CERAMIC CHIP	33PF	5%	50V
C4215	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4216	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4217	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C4218	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4219	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4220	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C4221	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6001	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6002	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6003	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6004	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6005	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C6006	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C6007	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C6008	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C6009	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C6010	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C6011	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6013	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6014	1-135-158-21	TANTALUM CHIP	15uF	20%	4V

Ref. No.	Part No.	Description			
C6015	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6016	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6017	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C6018	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6019	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6020	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6021	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6022	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6023	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6024	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6025	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C6026	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6027	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6028	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6029	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6031	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6032	1-216-864-11	METAL CHIP	0	5%	1/16W (Note)
C6033	1-127-895-11	TANTAL. CHIP	22uF	20%	4V
C6034	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6036	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6037	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C6038	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6039	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C6040	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6041	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6042	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6043	1-216-864-11	METAL CHIP	0	5%	1/16W (Note)
C6045	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6202	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C6203	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C6204	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C6205	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C6206	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6207	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6208	1-135-158-21	TANTALUM CHIP	15uF	20%	4V
C6209	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C6210	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C6211	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6212	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6213	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6214	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6216	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6217	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C6301	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6302	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6303	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6304	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6305	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6306	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6307	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6308	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C6313	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6314	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C6315	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6318	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V

Note : Resistors are mounted to the location where C6032, C6043 are printed.

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Ref. No.	Part No.	Description			
C6319	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6320	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C6321	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C6322	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C6323	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C6324	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C6325	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C7001	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7002	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7004	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7005	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7006	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7007	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7008	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7009	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7010	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7011	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C7012	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7013	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C7014	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7016	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7017	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C7018	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7019	1-164-388-91	CERAMIC CHIP	270PF	5%	50V
C7020	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C7021	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7023	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7024	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C7025	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7026	1-100-610-91	TANTAL. CHIP	220uF	20%	5V
C7027	1-100-610-91	TANTAL. CHIP	220uF	20%	5V
C7028	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C7029	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C7031	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C7200	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C7201	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8000	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8002	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8003	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C8004	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8005	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8006	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8007	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8008	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C8009	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8010	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C8011	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8012	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8013	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C8014	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C8016	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C8017	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C8018	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C8019	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C8020	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8021	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C8022	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8023	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C8024	1-119-751-11	TANTAL. CHIP	22uF	20%	16V

Ref. No.	Part No.	Description			
C8025	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C8026	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C8027	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C8028	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C8029	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8030	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8031	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8032	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8033	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8034	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8035	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8036	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C8037	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C8038	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8039	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8040	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8041	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8042	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8043	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8044	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8045	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C8046	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C8047	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C8048	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8049	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8050	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C8052	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8053	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8054	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C8055	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8056	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8057	1-131-860-91	TANTAL. CHIP	4.7uF	20%	10V
C8058	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8059	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8060	1-131-860-91	TANTAL. CHIP	4.7uF	20%	10V
C8061	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8062	1-131-860-91	TANTAL. CHIP	4.7uF	20%	10V
C8063	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C8064	1-131-860-91	TANTAL. CHIP	4.7uF	20%	10V
C8065	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8066	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8067	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C8068	1-131-860-91	TANTAL. CHIP	4.7uF	20%	10V
C8070	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C8071	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8072	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C8073	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C8074	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C8075	1-107-690-11	TANTAL. CHIP	6.8uF	20%	35V
C8076	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C8077	1-127-861-11	CERAMIC CHIP	2.2uF	10%	16V
C8078	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8079	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C8080	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C8081	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C8082	1-131-860-91	TANTAL. CHIP	4.7uF	20%	10V

Ref. No.	Part No.	Description
		< CONNECTOR >
CN1004	1-784-423-21	CONNECTOR, FFC/FPC (ZIF) 39P
CN1010	1-785-902-21	CONNECTOR, FFC/FPC (ZIF) 23P
CN1501	1-779-329-11	CONNECTOR, FFC/FPC 10P
CN7200	1-691-372-21	CONNECTOR, FFC/FPC 8P
CN7201	1-794-766-21	CONNECTOR, FFC/FPC (LIF) 6P
CN7202	1-573-806-21	PIN, CONNECTOR (1.5MM) (SMD)6P
CN7204	1-794-764-11	CONNECTOR, FPC (ZIF) 21P
CN7205	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P
CN7206	1-785-969-21	CONNECTOR, BOARD TO BOARD 100P
CN7207	1-815-854-11	CONNECTOR, BOARD TO BOARD 80P
CN7211	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P
		< DIODE >
D2902	8-719-056-23	DIODE MA2S111-(K8).SO
D3401	8-719-077-54	DIODE MA4L11100AS0
D3402	8-719-075-62	DIODE 1SS401(TE85L)
D4201	8-719-084-46	DIODE 1SV288(TPH3)
D6001	8-719-056-85	DIODE UDZSTE-178.2B
D7200	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7201	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7202	8-719-056-85	DIODE UDZSTE-178.2B
D7203	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7204	8-719-056-85	DIODE UDZSTE-178.2B
D7205	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7206	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7207	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7208	8-719-062-16	DIODE 01ZA8.2(TPL3)
D7209	8-719-056-85	DIODE UDZSTE-178.2B
D7210	8-719-056-85	DIODE UDZSTE-178.2B
D8000	8-719-077-48	DIODE MA4L72800AS0
D8001	8-719-077-57	DIODE DF3A8.2C(TPL3)
D8002	8-719-077-74	DIODE MA2S784008S0
D8003	8-719-058-24	DIODE RB501V-40TE-17
D8004	8-719-076-80	DIODE SBS004-TL
		< FUSE >
⚠F8000	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
⚠F8001	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
⚠F8002	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
⚠F8003	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
⚠F8004	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
⚠F8005	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
⚠F8006	1-576-406-21	FUSE, MICRO (1.4A/32V) (1608)
		< FERRITE BEAD >
FB4201	1-469-676-22	FERRITE 0uH
FB6001	1-469-676-22	FERRITE 0uH
FB6201	1-469-676-22	FERRITE 0uH
FB7001	1-469-676-22	FERRITE 0uH
		< IC >
IC1501	8-759-359-49	IC NJM3414AV(TE2)
IC1502	8-759-359-49	IC NJM3414AV(TE2)
IC1503	8-759-058-45	IC NJM3403AV(TE2)
IC1504	8-759-058-45	IC NJM3403AV(TE2)
IC1505	8-759-478-92	IC TC7SET04FU(TE85R)

Ref. No.	Part No.	Description
IC1506	8-759-478-92	IC TC7SET04FU(TE85R)
IC3401	1-804-268-11	IC WTGA-NJM12902C
IC3402	6-701-957-01	IC M50230FP-DF0T
IC3403	1-804-268-11	IC WTGA-NJM12902C
IC3404	8-759-662-18	IC CXD9571R-TEB
IC3405	1-804-268-11	IC WTGA-NJM12902C
IC3406	6-700-709-01	IC NJU7241F31(TE2)
IC4201	8-752-100-95	IC CXA3289AR-T4
IC4202	8-752-405-57	IC CXD3501AR-T4
IC6001	8-759-826-24	IC LA74208GL-TBM
IC6002	8-759-833-99	IC TC74HC4052AFT(EL)
IC6004	8-759-826-26	IC AK4550VL-L
IC6201	8-759-826-24	IC LA74208GL-TBM
IC6301	6-701-112-01	IC DS1801E-02V-T/R
IC6302	6-702-589-01	IC M52065FP-70BD
IC6303	8-759-111-56	IC uPC4572G2-E2
IC6304	8-759-710-79	IC NJM2107F-TE2
IC6305	8-759-675-54	IC TC7W53FK(TE85R)
IC7001	6-701-656-01	IC AN2225NBBTBA
IC8000	6-700-019-01	IC MB4499LGA-G-ER
IC8001	8-759-387-30	IC TA75S01F(T5RSONY1)
IC8002	6-700-709-01	IC NJU7241F31(TE2)
IC8004	6-700-711-01	IC BA3986FV-E2
		< COIL >
L1501	1-414-754-11	INDUCTOR 10uH
L3401	1-469-525-91	INDUCTOR 10uH
L3402	1-414-771-91	INDUCTOR 10uH
L3403	1-414-771-91	INDUCTOR 10uH
L4201	1-414-771-91	INDUCTOR 10uH
L4202	1-412-947-11	INDUCTOR 4.7uH
L4203	1-414-771-91	INDUCTOR 10uH
L6001	1-400-137-11	INDUCTOR 10uH
L6002	1-400-137-11	INDUCTOR 10uH
L6201	1-414-771-91	INDUCTOR 10uH
L7001	1-469-525-91	INDUCTOR 10uH
L7002	1-414-771-91	INDUCTOR 10uH
L7003	1-412-937-11	INDUCTOR 0.68uH
L7004	1-469-525-91	INDUCTOR 10uH
L8000	1-419-311-21	INDUCTOR 100uH
L8001	1-419-354-21	INDUCTOR 22uH
L8002	1-419-354-21	INDUCTOR 22uH
L8003	1-416-670-11	INDUCTOR 33uH
L8004	1-419-354-21	INDUCTOR 22uH
L8005	1-419-354-21	INDUCTOR 22uH
L8006	1-416-668-41	INDUCTOR 10uH
L8007	1-419-354-21	INDUCTOR 22uH
L8008	1-416-344-11	INDUCTOR 10uH
L8009	1-419-354-21	INDUCTOR 22uH
L8010	1-469-522-91	INDUCTOR 1uH
L8012	1-469-522-91	INDUCTOR 1uH
L8013	1-469-522-91	INDUCTOR 1uH
L8014	1-469-522-91	INDUCTOR 1uH
L8015	1-469-522-91	INDUCTOR 1uH
L8017	1-469-522-91	INDUCTOR 1uH

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref. No.	Part No.	Description	
L8018	1-469-522-91	INDUCTOR	1uH
L8019	1-414-770-91	INDUCTOR	4.7uH
L8020	1-469-522-91	INDUCTOR	1uH
L8021	1-469-522-91	INDUCTOR	1uH
L8022	1-469-522-91	INDUCTOR	1uH
L8023	1-469-522-91	INDUCTOR	1uH
L8024	1-469-522-91	INDUCTOR	1uH
L8025	1-414-770-91	INDUCTOR	4.7uH
L8026	1-414-770-91	INDUCTOR	4.7uH
L8027	1-414-770-91	INDUCTOR	4.7uH
L8028	1-414-770-91	INDUCTOR	4.7uH
		< LINE FILTER >	
LF8000	1-411-957-11	FILTER, COMMON MODE	
		< TRANSISTOR >	
Q1501	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
Q1502	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q1503	8-729-037-76	TRANSISTOR	UN9215J-(K8).SO
Q1504	8-729-013-31	TRANSISTOR	2SA1588-OY-TE85L
Q2907	8-729-013-31	TRANSISTOR	2SA1588-OY-TE85L
Q2908	8-729-050-93	TRANSISTOR	UNRL21500AS0
Q3401	8-729-050-76	TRANSISTOR	EC3201C-PM-TL
Q3402	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO
Q3403	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q3404	8-729-050-76	TRANSISTOR	EC3201C-PM-TL
Q3405	8-729-050-76	TRANSISTOR	EC3201C-PM-TL
Q3406	8-729-050-76	TRANSISTOR	EC3201C-PM-TL
Q6001	8-729-054-52	TRANSISTOR	RN1910FE(TPLR3)
Q6002	8-729-054-52	TRANSISTOR	RN1910FE(TPLR3)
Q6003	8-729-050-83	TRANSISTOR	UNRL11500AS0
Q6004	8-729-050-91	TRANSISTOR	UNRL21300AS0
Q6005	8-729-054-51	TRANSISTOR	RN2910FE(TPLR3)
Q6006	8-729-054-52	TRANSISTOR	RN1910FE(TPLR3)
Q6007	8-729-024-39	TRANSISTOR	2SD1511-R/S(TX)
Q6008	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
Q6009	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
Q6010	8-729-037-59	TRANSISTOR	UN9111J-(TX).SO
Q6011	8-729-037-74	TRANSISTOR	UN9213J-(TX).SO
Q7001	8-729-050-76	TRANSISTOR	EC3201C-PM-TL
Q7002	8-729-050-81	TRANSISTOR	UNRL11300AS0
Q7004	8-729-050-73	TRANSISTOR	2SC5376C-B(TPL3)
Q7005	8-729-050-73	TRANSISTOR	2SC5376C-B(TPL3)
Q7200	8-729-037-72	TRANSISTOR	UN9211J-(K8).SO
Q8000	8-729-047-68	TRANSISTOR	SSM3K03FE(TPL3)
Q8001	8-729-051-49	TRANSISTOR	TPC8305(TE12L)
Q8002	8-729-804-41	TRANSISTOR	2SB1122-ST-TD
Q8003	8-729-050-91	TRANSISTOR	UNRL21300AS0
Q8004	8-729-050-91	TRANSISTOR	UNRL21300AS0
Q8005	8-729-050-91	TRANSISTOR	UNRL21300AS0
Q8006	8-729-050-81	TRANSISTOR	UNRL11300AS0
Q8007	8-729-050-81	TRANSISTOR	UNRL11300AS0
Q8008	6-550-171-01	TRANSISTOR	MCH3317-TL-E
Q8009	6-550-171-01	TRANSISTOR	MCH3317-TL-E
Q8010	6-550-171-01	TRANSISTOR	MCH3317-TL-E
Q8011	6-550-171-01	TRANSISTOR	MCH3317-TL-E

Ref. No.	Part No.	Description			
Q8012	6-550-171-01	TRANSISTOR	MCH3317-TL-E		
Q8013	6-550-171-01	TRANSISTOR	MCH3317-TL-E		
Q8014	6-550-171-01	TRANSISTOR	MCH3317-TL-E		
Q8015	8-729-056-72	TRANSISTOR	MCH5805-TL-E		
Q8016	6-550-171-01	TRANSISTOR	MCH3317-TL-E		
Q8017	8-729-023-89	TRANSISTOR	2SJ305(TE85L)		
Q8018	8-729-023-89	TRANSISTOR	2SJ305(TE85L)		
Q8019	8-729-056-01	TRANSISTOR	MCH3405-TL-E		
Q8020	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8021	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8022	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8023	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8024	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8025	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8026	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8027	8-729-056-02	TRANSISTOR	MCH5804-TL-E		
Q8028	8-729-051-49	TRANSISTOR	TPC8305(TE12L)		
Q8029	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
Q8030	8-729-050-74	TRANSISTOR	EC3101C-PM-TL		
Q8031	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
Q8032	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
Q8033	8-729-050-74	TRANSISTOR	EC3101C-PM-TL		
Q8034	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
		< RESISTOR >			
R1501	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R1502	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R1503	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R1504	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R1505	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R1506	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R1507	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R1508	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R1509	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1510	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R1511	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1512	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R1513	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1514	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1515	1-218-979-11	RES-CHIP	150K	5%	1/16W
R1516	1-218-979-11	RES-CHIP	150K	5%	1/16W
R1517	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1518	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1519	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1520	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R1523	1-208-939-11	METAL CHIP	150K	0.5%	1/16W
R1524	1-208-939-11	METAL CHIP	150K	0.5%	1/16W
R1525	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R1526	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R1527	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R1528	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R1529	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1530	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1531	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1532	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1533	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1534	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1535	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R1536	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R1537	1-208-931-11	METAL CHIP	68K	0.5%	1/16W

Ref. No.	Part No.	Description			
R1538	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R1539	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1540	1-218-973-11	RES-CHIP	47K	5%	1/16W
R1541	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1542	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1543	1-216-295-91	SHORT CHIP	0		
R2942	1-218-947-11	RES-CHIP	330	5%	1/16W
R2943	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2944	1-218-990-11	SHORT CHIP	0		
R3401	1-218-990-11	SHORT CHIP	0		
R3402	1-218-990-11	SHORT CHIP	0		
R3403	1-218-990-11	SHORT CHIP	0		
R3404	1-218-990-11	SHORT CHIP	0		
R3405	1-218-990-11	SHORT CHIP	0		
R3406	1-218-990-11	SHORT CHIP	0		
R3407	1-218-990-11	SHORT CHIP	0		
R3408	1-218-990-11	SHORT CHIP	0		
R3409	1-218-990-11	SHORT CHIP	0		
R3410	1-218-990-11	SHORT CHIP	0		
R3411	1-218-990-11	SHORT CHIP	0		
R3412	1-218-990-11	SHORT CHIP	0		
R3413	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3414	1-216-001-00	METAL CHIP	10	5%	1/10W
R3415	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3416	1-218-973-11	RES-CHIP	47K	5%	1/16W
R3417	1-218-945-11	RES-CHIP	220	5%	1/16W
R3418	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3419	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3420	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R3421	1-218-973-11	RES-CHIP	47K	5%	1/16W
R3422	1-218-969-11	RES-CHIP	22K	5%	1/16W
R3423	1-218-968-11	RES-CHIP	18K	5%	1/16W
R3424	1-218-972-11	RES-CHIP	39K	5%	1/16W
R3425	1-218-980-11	RES-CHIP	180K	5%	1/16W
R3426	1-218-980-11	RES-CHIP	180K	5%	1/16W
R3427	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R3428	1-218-958-11	METAL CHIP	2.7K	0.5%	1/16W
R3429	1-218-969-11	RES-CHIP	22K	5%	1/16W
R3430	1-218-980-11	RES-CHIP	180K	5%	1/16W
R3431	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R3432	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R3433	1-218-966-11	RES-CHIP	12K	5%	1/16W
R3434	1-218-980-11	RES-CHIP	180K	5%	1/16W
R3435	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3436	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3437	1-218-990-11	SHORT CHIP	0		
R3438	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3439	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3440	1-218-974-11	METAL CHIP	56K	0.5%	1/16W
R3441	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3442	1-218-990-11	SHORT CHIP	0		
R3444	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3445	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R3446	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R3447	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R3450	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R3451	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R3452	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3453	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3454	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3456	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R3457	1-218-985-11	RES-CHIP	470K	5%	1/16W
R3458	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R3459	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R3460	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3461	1-218-981-11	RES-CHIP	220K	5%	1/16W
R3463	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3464	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3465	1-218-969-11	RES-CHIP	22K	5%	1/16W
R3466	1-218-969-11	RES-CHIP	22K	5%	1/16W
R3467	1-208-671-11	METAL CHIP	330	0.5%	1/16W
R3468	1-218-973-11	RES-CHIP	47K	5%	1/16W
R3469	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3470	1-218-965-11	RES-CHIP	10K	5%	1/16W
R3471	1-218-990-11	SHORT CHIP	0		
R3472	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3473	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3474	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R3475	1-218-974-11	METAL CHIP	56K	0.5%	1/16W
R3476	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3477	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R3478	1-218-990-11	SHORT CHIP	0		
R3479	1-218-990-11	SHORT CHIP	0		
R3480	1-218-990-11	SHORT CHIP	0		
R4201	1-218-985-11	RES-CHIP	470K	5%	1/16W
R4202	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R4205	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R4206	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4207	1-218-975-11	RES-CHIP	68K	5%	1/16W
R4208	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4209	1-218-975-11	RES-CHIP	68K	5%	1/16W
R4210	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4211	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4212	1-218-941-81	RES-CHIP	100	5%	1/16W
R4213	1-218-941-81	RES-CHIP	100	5%	1/16W
R4214	1-218-941-81	RES-CHIP	100	5%	1/16W
R4216	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4217	1-218-989-11	METAL CHIP	1M	0.5%	1/16W
R4218	1-218-990-11	SHORT CHIP	0		
R4221	1-216-864-11	METAL CHIP	0	5%	1/16W
R4222	1-216-864-11	METAL CHIP	0	5%	1/16W
R4223	1-218-941-81	RES-CHIP	100	5%	1/16W
R4224	1-218-941-81	RES-CHIP	100	5%	1/16W
R6001	1-218-937-11	RES-CHIP	47	5%	1/16W
R6002	1-218-937-11	RES-CHIP	47	5%	1/16W
R6003	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6004	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6006	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6007	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6008	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R6009	1-218-937-11	RES-CHIP	47	5%	1/16W
R6010	1-218-937-11	RES-CHIP	47	5%	1/16W
R6011	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R6013	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R6014	1-218-971-11	RES-CHIP	33K	5%	1/16W
R6015	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6016	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6017	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6018	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6019	1-218-949-11	RES-CHIP	470	5%	1/16W

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Ref. No.	Part No.	Description			
R6020	1-218-969-11	RES-CHIP	22K	5%	1/16W
R6021	1-218-949-11	RES-CHIP	470	5%	1/16W
R6022	1-218-949-11	RES-CHIP	470	5%	1/16W
R6025	1-218-965-11	RES-CHIP	10K	5%	1/16W
R6028	1-218-971-11	RES-CHIP	33K	5%	1/16W
R6029	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6030	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R6031	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R6035	1-218-990-11	SHORT CHIP	0		
R6036	1-216-864-11	METAL CHIP	0	5%	1/16W
R6201	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6202	1-208-930-11	METAL CHIP	62K	0.5%	1/16W
R6304	1-208-920-81	METAL CHIP	24K	0.5%	1/16W
R6309	1-218-990-11	SHORT CHIP	0		
R6311	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6312	1-218-977-11	RES-CHIP	100K	5%	1/16W
R6315	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6316	1-218-953-11	RES-CHIP	1K	5%	1/16W
R6317	1-218-967-11	RES-CHIP	15K	5%	1/16W
R6318	1-218-967-11	RES-CHIP	15K	5%	1/16W
R6322	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6323	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6327	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6328	1-218-973-11	RES-CHIP	47K	5%	1/16W
R6331	1-208-920-81	METAL CHIP	24K	0.5%	1/16W
R6336	1-218-990-11	SHORT CHIP	0		
R7001	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R7002	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R7003	1-218-941-81	RES-CHIP	100	5%	1/16W
R7004	1-218-981-11	RES-CHIP	220K	5%	1/16W
R7006	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7007	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7008	1-218-935-11	RES-CHIP	33	5%	1/16W
R7009	1-218-935-11	RES-CHIP	33	5%	1/16W
R7010	1-218-935-11	RES-CHIP	33	5%	1/16W
R7011	1-218-935-11	RES-CHIP	33	5%	1/16W
R7012	1-218-935-11	RES-CHIP	33	5%	1/16W
R7013	1-218-935-11	RES-CHIP	33	5%	1/16W
R7016	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7017	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R7018	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7019	1-218-971-11	RES-CHIP	33K	5%	1/16W
R7020	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7021	1-218-972-11	RES-CHIP	39K	5%	1/16W
R7022	1-218-945-11	RES-CHIP	220	5%	1/16W
R7023	1-218-965-11	RES-CHIP	10K	5%	1/16W
R7024	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7025	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7026	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7027	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7028	1-218-953-11	RES-CHIP	1K	5%	1/16W
R7200	1-218-990-11	SHORT CHIP	0		
R7201	1-218-990-11	SHORT CHIP	0		
R7204	1-218-990-11	SHORT CHIP	0		
R7205	1-218-990-11	SHORT CHIP	0		
R7206	1-218-990-11	SHORT CHIP	0		
R7207	1-218-990-11	SHORT CHIP	0		
R7208	1-218-990-11	SHORT CHIP	0		
R7209	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8000	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8001	1-218-985-11	RES-CHIP	470K	5%	1/16W
R8002	1-208-709-11	METAL CHIP	12K	0.5%	1/16W
R8003	1-218-990-11	SHORT CHIP	0		
R8004	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8005	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R8007	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R8008	1-220-206-11	METAL CHIP	91K	0.5%	1/16W
R8009	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R8010	1-216-150-91	RES-CHIP	10	5%	1/8W
R8011	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R8012	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R8013	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8014	1-218-965-11	RES-CHIP	10K	5%	1/16W
R8015	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8016	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R8017	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8018	1-218-973-11	RES-CHIP	47K	5%	1/16W
R8019	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8020	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8021	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R8022	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R8023	1-218-990-11	SHORT CHIP	0		
R8024	1-218-878-11	METAL CHIP	20K	0.5%	1/16W
R8025	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R8026	1-218-981-11	RES-CHIP	220K	5%	1/16W
R8027	1-218-973-11	RES-CHIP	47K	5%	1/16W
R8028	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R8029	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R8030	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R8031	1-218-968-11	RES-CHIP	18K	5%	1/16W
R8033	1-218-990-11	SHORT CHIP	0		
R8034	1-218-969-11	RES-CHIP	22K	5%	1/16W
R8035	1-218-979-11	RES-CHIP	150K	5%	1/16W
R8036	1-218-990-11	SHORT CHIP	0		
R8037	1-218-990-11	SHORT CHIP	0		
R8038	1-218-990-11	SHORT CHIP	0		
R8039	1-216-864-11	METAL CHIP	0	5%	1/16W
R8040	1-218-990-11	SHORT CHIP	0		
R8041	1-216-864-11	METAL CHIP	0	5%	1/16W
R8042	1-218-990-11	SHORT CHIP	0		
R8043	1-216-864-11	METAL CHIP	0	5%	1/16W
R8044	1-216-864-11	METAL CHIP	0	5%	1/16W
R8045	1-216-864-11	METAL CHIP	0	5%	1/16W
R8046	1-216-864-11	METAL CHIP	0	5%	1/16W
R8047	1-216-864-11	METAL CHIP	0	5%	1/16W
R8048	1-216-864-11	METAL CHIP	0	5%	1/16W
R8049	1-216-864-11	METAL CHIP	0	5%	1/16W
R8050	1-216-864-11	METAL CHIP	0	5%	1/16W
R8051	1-216-864-11	METAL CHIP	0	5%	1/16W
R8052	1-218-973-11	RES-CHIP	47K	5%	1/16W
R8053	1-218-973-11	RES-CHIP	47K	5%	1/16W
R8054	1-218-941-81	RES-CHIP	100	5%	1/16W
R8055	1-218-941-81	RES-CHIP	100	5%	1/16W
R8056	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8057	1-218-989-11	RES-CHIP	1M	5%	1/16W
R8059	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8060	1-218-953-11	RES-CHIP	1K	5%	1/16W
R8061	1-218-990-11	SHORT CHIP	0		
R8065	1-218-974-11	METAL CHIP	56K	0.5%	1/16W
R8066	1-218-990-11	SHORT CHIP	0		

Ref. No.	Part No.	Description			
R8067	1-218-974-11	METAL CHIP	56K	0.5%	1/16W
R8068	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8069	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R8070	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R8071	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R8072	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R8073	1-218-977-11	RES-CHIP	100K	5%	1/16W
R8074	1-218-952-11	RES-CHIP	820	5%	1/16W
R8075	1-208-697-11	METAL CHIP	3.9K	0.5%	1/16W
R8076	1-218-878-11	METAL CHIP	20K	0.5%	1/16W
R8077	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R8078	1-216-864-11	METAL CHIP	0	5%	1/16W
R8079	1-216-864-11	METAL CHIP	0	5%	1/16W
R8080	1-216-864-11	METAL CHIP	0	5%	1/16W
R8081	1-216-864-11	METAL CHIP	0	5%	1/16W
R8082	1-216-864-11	METAL CHIP	0	5%	1/16W
R8083	1-216-864-11	METAL CHIP	0	5%	1/16W
R8084	1-216-864-11	METAL CHIP	0	5%	1/16W
R8085	1-216-864-11	METAL CHIP	0	5%	1/16W
R8086	1-216-864-11	METAL CHIP	0	5%	1/16W
R8087	1-216-864-11	METAL CHIP	0	5%	1/16W
R8088	1-216-864-11	METAL CHIP	0	5%	1/16W
R8089	1-216-864-11	METAL CHIP	0	5%	1/16W
		< VIBRATOR >			
X7001	1-781-641-21	VIBRATOR, CRYSTAL (13.5MHz)			

Ref. No.	Part No.	Description
	A-7078-342-A	FP-495 BOARD, COMPLETE **********************
		< SWITCH >
S001	1-786-179-31	SWITCH, PUSH (1KEY) (PANEL OPEN)
S002	1-771-039-31	SWITCH, PUSH (PANEL REVERSE)

Ref. No.	Part No.	Description
	A-7078-343-A	FP-496 BOARD, COMPLETE **********************
		< CONNECTOR >
CN001	1-784-938-21	CONNECTOR, BOARD TO BOARD 60P
CN002	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P

Ref. No.	Part No.	Description
	A-7078-344-A	FP-497 BOARD, COMPLETE **********************
		< DIODE >
D001	8-719-080-62	DIODE CL-190HBF-X-T
		< SWITCH >
S001	1-771-138-82	SWITCH, KEY BOARD

Ref. No.	Part No.	Description
	A-7078-345-A	FP-498 BOARD, COMPLETE **********************
		< CONNECTOR >
CN001	1-785-969-21	CONNECTOR, BOARD TO BOARD 100P
CN002	1-785-967-21	CONNECTOR, BOARD TO BOARD 100P

Ref. No.	Part No.	Description
	A-7078-346-A	FP-499 BOARD, COMPLETE **********************
		< CONNECTOR >
CN001	1-815-854-11	CONNECTOR, BOARD TO BOARD 80P
CN002	1-815-855-31	CONNECTOR, BOARD TO BOARD 80P

Ref. No.	Part No.	Description			
	A-7078-341-A	FP-504 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C601	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
		< DIODE >			
D601	8-719-070-92	DIODE TLOU1008(T05,SOY) (TALLY)			
D602	8-719-052-25	DIODE CL-200IR-X-TU-BC (IR)			
D603	8-719-061-82	DIODE TLSU1002(TPX1,SONY) (CAMERA RECORDING)			
D605	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D606	8-719-056-23	DIODE MA2S111-(K8).SO			
D607	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D608	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D609	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D610	8-719-062-16	DIODE 01ZA8.2(TPL3)			
		< FUSE >			
⚠F601	1-533-874-11	FUSE, MICRO (0.2A/24V)			
		< IC >			
IC601	8-742-221-00	HYB IC SBX3055-01			
		< PHOTO INTERRUPTER >			
PH601	8-759-014-54	HIC CNA1312K01S0			
PH602	8-759-014-54	HIC CNA1312K01S0			
		< TRANSISTOR >			
Q601	8-729-037-72	TRANSISTOR	UN9211J-(K8).SO		
		< RESISTOR >			
R601	1-216-838-11	METAL CHIP	27K	5%	1/16W
R602	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R603	1-216-813-11	METAL CHIP	220	5%	1/16W
R604	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R605	1-216-805-11	METAL CHIP	47	5%	1/16W
R606	1-216-815-11	METAL CHIP	330	5%	1/16W
R607	1-216-821-11	METAL CHIP	1K	5%	1/16W

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			
		< SWITCH >			
S601	1-771-487-21	SWITCH, SLIDE (FOCUS AUTO/MAN/INFINITY)			
S602	1-771-138-82	SWITCH, KEY BOARD (PUSH AUTO)			
S603	1-771-138-82	SWITCH, KEY BOARD (INDEX)			
S604	1-771-138-82	SWITCH, KEY BOARD (FADER)			

Ref. No.	Part No.	Description			
	A-7078-332-A	JK-222 BOARD, COMPLETE **********************			
		< CONNECTOR >			
CN401	1-785-828-11	CONNECTOR, SQUARE TYPE 4P (DV)			
CN402	1-794-962-11	CONNECTOR, SQUARE TYPE(USB 5P) (USB)			
		< DIODE >			
D401	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D402	8-719-062-16	DIODE 01ZA8.2(TPL3)			
		< FERRITE BEAD >			
FB401	1-500-444-11	FERRITE	0uH		
FB402	1-500-444-11	FERRITE	0uH		
FB403	1-469-667-21	FERRITE	0uH		
FB404	1-469-667-21	FERRITE	0uH		
FB405	1-500-444-11	FERRITE	0uH		
FB406	1-469-667-21	FERRITE	0uH		
FB407	1-469-667-21	FERRITE	0uH		
		< JACK >			
J401	1-778-518-11	CONNECTOR, EXTERNAL (S VIDEO)			
J402	1-793-995-11	JACK, SUPER SMALL TYPE (LANC)			
J403	1-569-950-41	JACK (SMALL TYPE) (HEADPHONES)			
J404	1-778-040-11	JACK, SMALL TYPE (AUDIO/VIDEO)			
		< LINE FILTER >			
LF401	1-419-100-21	INDUCTOR	0uH		
LF402	1-419-100-21	INDUCTOR	0uH		
		< RESISTOR >			
R401	1-469-667-21	FERRITE	0uH (Note)		
R402	1-216-864-11	METAL CHIP	0	5%	1/16W
R403	1-469-667-21	FERRITE	0uH (Note)		
R404	1-218-965-11	RES-CHIP	10K	5%	1/16W
R406	1-469-667-21	FERRITE	0uH (Note)		
R407	1-218-965-11	RES-CHIP	10K	5%	1/16W
R408	1-469-667-21	FERRITE	0uH (Note)		
R410	1-216-864-11	METAL CHIP	0	5%	1/16W
R411	1-216-864-11	METAL CHIP	0	5%	1/16W
		< VARISTOR >			
VDR401	1-801-862-11	VARISTOR, CHIP			
VDR402	1-803-742-21	VARISTOR, CHIP			
VDR403	1-803-742-21	VARISTOR, CHIP			
VDR404	1-801-862-11	VARISTOR, CHIP			
VDR405	1-803-742-21	VARISTOR, CHIP			
VDR406	1-801-862-11	VARISTOR, CHIP			
VDR407	1-801-862-11	VARISTOR, CHIP			
VDR408	1-801-862-11	VARISTOR, CHIP			
VDR409	1-803-742-21	VARISTOR, CHIP			

Ref. No.	Part No.	Description			
	A-7078-399-A	LB-089 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C6101	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C6102	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		< CONNECTOR >			
CN6101	1-573-360-21	CONNECTOR, FFC/FPC 20P			
CN6102	1-573-356-21	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D6101	8-719-018-51	DIODE CL-170R-CD-T (TALLY)			
D6102	8-719-082-33	DIODE NSCW100-T38 (BACKLIGHT)			
		< IC >			
IC6101	8-759-581-11	IC NJM2125F(TE2)			
		< TRANSISTOR >			
Q6101	8-729-054-48	TRANSISTOR	RN4983FE(TPLR3)		
Q6102	8-729-054-48	TRANSISTOR	N1B04FE-Y/GR(TPLR3)		
		< RESISTOR >			
R6101	1-218-948-11	RES-CHIP	390	5%	1/16W
R6102	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R6103	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R6104	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R6105	1-216-839-11	METAL CHIP	33K	5%	1/16W
R6106	1-211-983-11	METAL CHIP	39	0.5%	1/10W
R6107	1-218-963-11	RES-CHIP	6.8K	5%	1/16W

Ref. No.	Part No.	Description			
	A-7078-515-A	MA-425 BOARD, COMPLETE ***********************			
		< CAPACITOR >			
C5901	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C5905	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5906	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5907	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5908	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5909	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C5910	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5912	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5913	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5914	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5917	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5918	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5920	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5921	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5922	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5923	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C5924	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5925	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C5926	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C5927	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V

Note : Ferrite are mounted to the location where R401, R403, R406 and R408 are printed.

Ref. No.	Part No.	Description			
C5928	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C5929	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C5930	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5931	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C5932	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5933	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5934	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C5935	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C5936	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C5937	1-125-841-91	TANTAL. CHIP	22uF	20%	4V
C5938	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5939	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5940	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5941	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5944	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C5945	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
* CN5901	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
* CN5902	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN5903	1-779-327-11	CONNECTOR, FFC/FPC 6P			
CN5904	1-816-684-11	CONNECTOR, FFC/FPC (ZIF) 8P			
CN5905	1-816-177-11	CONNECTOR, FFC/FPC (ZIF) 16P			
CN5906	1-784-422-11	CONNECTOR, FFC/FPC (ZIF) 33P			
		< FERRITE BEAD >			
FB5901	1-500-444-11	FERRITE	0uH		
FB5902	1-500-444-11	FERRITE	0uH		
		< IC >			
IC5901	8-759-638-50	IC AN2901FHQ-EB			
IC5902	8-759-581-11	IC NJM2125F(TE2)			
		< JACK >			
J5901	1-691-737-41	JACK (SMALL TYPE) (MIC (PLUG IN POWER))			
		< COIL >			
L5901	1-469-528-91	INDUCTOR	100uH		
		< TRANSISTOR >			
Q5901	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO		
Q5902	8-729-048-77	TRANSISTOR	XP4313-(TX).SO		
Q5903	8-729-048-77	TRANSISTOR	XP4313-(TX).SO		
Q5904	8-729-402-42	TRANSISTOR	UN5213-TX		
Q5905	8-729-403-35	TRANSISTOR	UN5113-TX		
Q5906	8-729-140-75	TRANSISTOR	2SD999-T1-CLCK		
		< RESISTOR >			
R5901	1-216-864-11	METAL CHIP	0	5%	1/16W
R5903	1-218-968-11	RES-CHIP	18K	5%	1/16W
R5904	1-218-971-11	RES-CHIP	33K	5%	1/16W
R5905	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5906	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5907	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5908	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5909	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5910	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5911	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5912	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5914	1-216-803-11	METAL CHIP	33	5%	1/16W
R5915	1-216-803-11	METAL CHIP	33	5%	1/16W
R5916	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5917	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5918	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5919	1-208-910-11	RES-CHIP	9.1K	5%	1/16W
R5920	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5921	1-208-910-11	RES-CHIP	9.1K	5%	1/16W
R5922	1-218-949-11	RES-CHIP	470	5%	1/16W
R5923	1-218-990-11	SHORT CHIP	0		
R5924	1-218-990-11	SHORT CHIP	0		
R5925	1-218-949-11	RES-CHIP	470	5%	1/16W
R5926	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R5927	1-220-191-81	RES-CHIP	5.1K	5%	1/16W
R5928	1-220-191-81	RES-CHIP	5.1K	5%	1/16W
R5929	1-216-817-11	METAL CHIP	470	5%	1/16W
R5930	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5931	1-218-971-11	RES-CHIP	33K	5%	1/16W
R5933	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5934	1-218-968-11	RES-CHIP	18K	5%	1/16W
R5935	1-218-971-11	RES-CHIP	33K	5%	1/16W
R5936	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R5937	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5938	1-208-912-11	METAL CHIP	11K	0.5%	1/16W
R5939	1-216-820-11	METAL CHIP	820	5%	1/16W
R5940	1-216-833-11	METAL CHIP	10K	5%	1/16W
R5941	1-208-701-11	METAL CHIP	5.6K	0.5%	1/16W
R5943	1-208-912-11	METAL CHIP	11K	0.5%	1/16W
R5944	1-218-943-11	RES-CHIP	150	5%	1/16W
R5946	1-216-864-11	METAL CHIP	0	5%	1/16W
R5947	1-218-952-11	RES-CHIP	820	5%	1/16W
R5948	1-218-941-81	RES-CHIP	100	5%	1/16W
R5949	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5951	1-218-949-11	RES-CHIP	470	5%	1/16W
R5952	1-218-947-11	RES-CHIP	330	5%	1/16W
R5953	1-216-313-00	METAL CHIP	8.2	5%	1/10W
		< VARISTOR >			
VDR591	1-801-862-11	VARISTOR, CHIP			
VDR592	1-801-862-11	VARISTOR, CHIP			

	A-7078-516-A	PD-191 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C5701	1-113-988-11	TANTAL. CHIP	68uF	20%	4V
C5702	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5703	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5704	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5705	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5706	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5707	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C5708	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5709	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5710	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			
C5711	1-100-502-11	TANTAL. CHIP	3.3uF	20%	25V
C5712	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5713	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5714	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5715	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5716	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5717	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C5718	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C5719	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5720	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5721	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5722	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C5723	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5724	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5726	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5727	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5801	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5802	1-127-985-91	TANTAL. CHIP	47uF	20%	16V
C5803	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5805	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5807	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C5808	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
		< CONNECTOR >			
CN5701	1-573-364-11	CONNECTOR, FFC/FPC 24P			
CN5802	1-794-997-11	PIN, CONNECTOR 20P			
* CN5803	1-778-155-11	CONNECTOR, FFC/FPC (ZIF) 7P			
CN5804	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P			
CN5805	1-785-554-21	CONNECTOR (5P), CARD EDGE			
CN5806	1-816-463-11	PIN, CONNECTOR (PC BOARD) 10P			
		< DIODE >			
D5701	8-719-404-50	DIODE MA111-TX			
D5702	8-719-084-46	DIODE 1SV288(TPH3)			
		< IC >			
IC5701	6-702-491-01	IC AN12580A-BB			
IC5702	8-759-833-18	IC CM7021L3-E2			
IC5801	8-759-573-02	IC BU9735K-E2			
		< COIL >			
L5701	1-469-525-91	INDUCTOR	10uH		
L5702	1-414-771-91	INDUCTOR	10uH		
L5703	1-414-771-91	INDUCTOR	10uH		
L5704	1-414-771-91	INDUCTOR	10uH		
L5705	1-412-943-11	INDUCTOR	2.2uH		
L5801	1-412-056-11	INDUCTOR	4.7uH		
L5802	1-414-757-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q5701	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO		
Q5702	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO		
Q5801	8-729-042-72	TRANSISTOR	UN9214J-(K8).SO		
Q5802	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO		

Ref. No.	Part No.	Description			
		< RESISTOR >			
R5701	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5702	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R5703	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R5705	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5706	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5707	1-216-835-11	METAL CHIP	15K	5%	1/16W
R5708	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5709	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5710	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5711	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5712	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5713	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5714	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5717	1-216-864-11	METAL CHIP	0	5%	1/16W
R5719	1-218-942-11	RES-CHIP	120	5%	1/16W
R5721	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5722	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5727	1-218-974-11	RES-CHIP	56K	5%	1/16W
R5732	1-218-941-81	RES-CHIP	100	5%	1/16W
R5736	1-218-941-81	RES-CHIP	100	5%	1/16W
R5737	1-218-941-81	RES-CHIP	100	5%	1/16W
R5801	1-218-941-81	RES-CHIP	100	5%	1/16W
R5802	1-216-855-11	METAL CHIP	680K	5%	1/16W
R5803	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5804	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5805	1-216-864-11	METAL CHIP	0	5%	1/16W

	A-7078-339-A	SE-132 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C4001	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4002	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4003	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4005	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4006	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4007	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4008	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4009	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4010	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4011	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4012	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4014	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4015	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN4005	1-764-680-21	CONNECTOR, FFC/FPC (ZIF) 8P			
		< IC >			
IC4001	8-759-489-19	IC NJM3230V(TE2)			
		< COIL >			
L4001	1-414-771-91	INDUCTOR	10uH		

Ref. No.	Part No.	Description			
		< TRANSISTOR >			
Q4001	8-729-042-26	TRANSISTOR	2SB1462J-QR(K8).SO		
Q4002	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO		
		< RESISTOR >			
R4001	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4002	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4003	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4004	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4005	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4006	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4007	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4009	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4010	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4011	1-218-973-11	RES-CHIP	47K	5%	1/16W
		< SENSOR >			
SE4001	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH)			
SE4002	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW)			

Ref. No.	Part No.	Description			
	A-7078-397-A	VC-318 (UDN) BOARD, COMPLETE (SERVICE) (PDX10)			
		***************************************			
	A-7078-400-A	VC-318 (UDP) BOARD, COMPLETE (SERVICE) (PDX10P)			
		***************************************			
		< CAPACITOR >			
C1201	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C1202	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C1203	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1204	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1205	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C1206	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1207	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1208	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C1209	1-117-748-81	CERAMIC CHIP	10PF		16V
C1210	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C1211	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C1212	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1213	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1214	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1215	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1216	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1217	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1218	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1219	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C1220	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C1221	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1222	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1223	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1224	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C1225	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C1226	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1227	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1228	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1229	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1230	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1231	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1232	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1233	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1234	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1235	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1236	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1237	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1238	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1239	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1240	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1241	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1242	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1243	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1244	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1245	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1246	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1247	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1248	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1249	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1253	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C1254	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C1255	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C1256	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C1257	1-104-919-11	TANTAL. CHIP	10uF	20%	25V
C1258	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C1259	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C1260	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C1261	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1262	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1263	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1265	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1266	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1267	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1301	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1302	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1303	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1304	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1305	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1306	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1307	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1308	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1309	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1310	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1311	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1312	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1314	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1315	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1316	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1317	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1318	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1319	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1320	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1321	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1322	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1323	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1324	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1326	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C1327	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1351	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1352	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V

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Ref. No.	Part No.	Description			
C1353	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1354	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1601	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1602	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1603	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1606	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1607	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1609	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1612	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1613	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1614	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1615	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1616	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1617	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1618	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1619	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1620	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1621	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1622	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1623	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1624	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C1701	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1703	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1705	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1706	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1707	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1708	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1709	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1710	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1711	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1712	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1713	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1714	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C1716	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C1717	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C1718	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C1801	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C1802	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1901	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1902	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1903	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1904	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C1905	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1906	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C1907	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1908	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C1909	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1910	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C1911	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1912	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C1913	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1914	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1915	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C1916	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C1917	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C1918	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1919	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1920	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1921	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1922	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1923	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1924	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C1926	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C1927	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2001	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2002	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2003	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C2004	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2005	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2006	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2007	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2008	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2009	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2010	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2011	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2012	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2013	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2014	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2015	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2016	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2017	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2018	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2019	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2020	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2022	1-164-862-11	CERAMIC CHIP	33PF	5%	50V
C2023	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2024	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2025	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2027	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2102	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2103	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2104	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2106	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C2107	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C2109	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2110	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2111	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2112	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2113	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2114	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2115	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2116	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2117	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2118	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2121	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2122	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2123	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2124	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2125	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2126	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2127	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C2128	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2129	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2130	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C2131	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2132	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V

Ref. No.	Part No.	Description			
C2133	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2134	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2135	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2136	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2137	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2138	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2139	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2140	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2141	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C2143	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2144	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2145	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2146	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C2302	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2303	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2304	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2305	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2306	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2307	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2308	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2309	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2310	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2311	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2312	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2313	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2317	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2401	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2402	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C2403	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2404	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C2405	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C2406	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2407	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C2408	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C2409	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2410	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2411	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2412	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2414	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2415	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C2416	1-115-156-11	CERAMIC CHIP	1uF		10V
C2417	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2418	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2422	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2423	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2424	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C2425	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2426	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2427	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2428	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2429	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C2430	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2431	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2432	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2433	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2434	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C2435	1-164-947-11	CERAMIC CHIP	0.01uF		50V
C2436	1-164-947-11	CERAMIC CHIP	0.01uF		50V
C2437	1-164-947-11	CERAMIC CHIP	0.01uF		50V
C2501	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			
C2502	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2503	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C2504	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C2505	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2506	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2507	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2508	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2509	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2510	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2511	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2512	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2513	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2514	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2515	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2516	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2518	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2519	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2520	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2522	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2523	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2524	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2525	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2526	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2715	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2716	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2717	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2718	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2719	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C2720	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C2721	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C2725	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2901	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2903	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2907	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2908	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2909	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2910	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2912	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2913	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2914	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2915	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2916	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2918	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2919	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2920	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2921	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2922	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2923	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2924	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C2925	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2926	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C2927	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C2928	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C3001	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3003	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C3004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3101	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C3102	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V

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Ref. No.	Part No.	Description			
C3103	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C3104	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C3105	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3106	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3107	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3113	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3115	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C3118	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C3121	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C3122	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C4301	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C4302	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C4303	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
		< CONNECTOR >			
CN1001	1-785-967-21	CONNECTOR, BOARD TO BOARD 100P			
CN1002	1-815-855-31	CONNECTOR, BOARD TO BOARD 80P			
CN1003	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P			
CN1005	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P			
CN1006	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P			
CN1007	1-784-421-11	CONNECTOR, FFC/FPC (ZIF) 27P			
CN1008	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P			
CN1009	1-779-329-11	CONNECTOR, FFC/FPC 10P			
CN1021	1-784-422-11	CONNECTOR, FFC/FPC (ZIF) 33P			
CN1022	1-691-374-11	CONNECTOR, FFC/FPC 10P			
CN1024	1-794-766-21	CONNECTOR, FFC/FPC (LIF) 6P			
CN1201	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P			
CN1901	1-691-374-11	CONNECTOR, FFC/FPC 10P			
		< DIODE >			
D1001	8-719-056-61	DIODE	MAZS082008SO		
D1201	8-719-988-61	DIODE	1SS355TE-17		
D1202	8-719-988-61	DIODE	1SS355TE-17		
D1203	8-719-082-63	DIODE	1SV329(TPL3)		
D1204	8-719-988-61	DIODE	1SS355TE-17		
D2101	8-719-992-02	DIODE	RB705D-T146		
D2102	8-719-081-96	DIODE	KV1870STL		
D2103	8-719-992-02	DIODE	RB705D-T146		
D2104	8-719-081-96	DIODE	KV1870STL		
D2701	8-719-421-67	DIODE	MA132WK-(K8).SO		
D2702	8-719-077-48	DIODE	MA4L72800AS0		
D2703	8-719-077-54	DIODE	MA4L11100AS0		
D2901	8-719-077-54	DIODE	MA4L11100AS0		
D2903	8-719-077-48	DIODE	MA4L72800AS0		
D2904	8-719-077-48	DIODE	MA4L72800AS0		
D2906	8-719-077-57	DIODE	DF3A8.2C(TPL3)		
D2907	8-719-077-57	DIODE	DF3A8.2C(TPL3)		
D2909	8-719-077-57	DIODE	DF3A8.2C(TPL3)		
D3101	8-719-056-23	DIODE	MA2S111-(K8).SO		
D4301	8-719-056-23	DIODE	MA2S111-(K8).SO		
		< FERRITE BEAD >			
FB1201	1-414-760-21	FERRITE	0uH		
FB1207	1-414-760-21	FERRITE	0uH		
FB1210	1-414-760-21	FERRITE	0uH		
FB1211	1-414-760-21	FERRITE	0uH		
FB1212	1-414-760-21	FERRITE	0uH		
FB1213	1-414-760-21	FERRITE	0uH		
FB1214	1-414-760-21	FERRITE	0uH		
FB1215	1-414-760-21	FERRITE	0uH		
FB1216	1-400-047-21	FERRITE	0uH		
FB1217	1-400-047-21	FERRITE	0uH		
FB1218	1-400-047-21	FERRITE	0uH		
FB1219	1-400-047-21	FERRITE	0uH		
FB1220	1-400-047-21	FERRITE	0uH		
FB1221	1-400-047-21	FERRITE	0uH		
FB1301	1-414-760-21	FERRITE	0uH		
FB1302	1-414-760-21	FERRITE	0uH		
FB1303	1-414-760-21	FERRITE	0uH		
FB1351	1-414-760-21	FERRITE	0uH		
FB1601	1-469-676-22	FERRITE	0uH		
FB1602	1-469-350-21	FERRITE	0uH		
FB1701	1-469-676-22	FERRITE	0uH		
FB1702	1-469-676-22	FERRITE	0uH		
FB1901	1-469-676-22	FERRITE	0uH		
FB2001	1-414-760-21	FERRITE	0uH		
FB2101	1-414-760-21	FERRITE	0uH		
FB2102	1-414-760-21	FERRITE	0uH		
FB2103	1-414-760-21	FERRITE	0uH		
FB2104	1-414-760-21	FERRITE	0uH		
FB2105	1-414-760-21	FERRITE	0uH		
FB2301	1-469-676-22	FERRITE	0uH		
FB2302	1-469-676-22	FERRITE	0uH		
FB2303	1-469-676-22	FERRITE	0uH		
FB2501	1-469-676-22	FERRITE	0uH		
FB2502	1-469-676-22	FERRITE	0uH		
FB2503	1-469-676-22	FERRITE	0uH		
FB2902	1-469-676-22	FERRITE	0uH		
FB2903	1-469-676-22	FERRITE	0uH		
FB2904	1-469-676-22	FERRITE	0uH		
FB2905	1-469-676-22	FERRITE	0uH		
* FB2906	1-500-282-11	FERRITE	0uH		
FB3001	1-469-676-22	FERRITE	0uH		
FB3101	1-469-676-22	FERRITE	0uH		
		< IC >			
IC1201	8-759-075-66	IC	TA75S01F(TE85R)		
IC1202	8-752-420-63	IC	CXD3613R-T6		
IC1203	6-701-756-01	IC	AD80054JSTRL		
IC1204	6-701-756-01	IC	AD80054JSTRL		
IC1205	6-701-756-01	IC	AD80054JSTRL		
IC1301	6-702-583-01	IC	T8F85XB-0001(EO)		
IC1302	8-759-664-14	IC	NJU7241F25(TE2)		
IC1351	6-702-227-01	IC	K4S283233F-EE1LT		
IC1601	8-752-417-39	IC	M65515WG-DF0Z		
IC1701	8-759-829-96	IC	MB81F641642J-15PB-ER		
IC1704	6-701-986-01	IC	HG76C020BPTLV		
IC1801	8-759-831-77	IC	BH2221FV-E2		
IC1901	8-752-086-52	IC	CXA2071R-T4		
IC1902	8-752-086-53	IC	CXA2072R-T4		
IC2001	6-701-740-01	IC	MB87L4261LGA-G-ER		
IC2101	8-759-650-63	IC	CAIN-CSP		
IC2102	6-700-553-01	IC	SN104266BGGM-TEB		
IC2301	8-752-415-97	IC	CXD3155GA-T6		
IC2302	6-701-691-01	IC	AK5355VT-E2		
IC2401	6-701-927-01	IC	TB6550XBG(EB)		

Ref. No.	Part No.	Description	
IC2501	6-802-335-01	IC MB91194LGA-G-120-ER	
IC2502	6-700-770-01	IC BR9016ARFVM-WTR	
IC2702	6-702-096-01	IC BD4201FV-E2	
IC2703	8-759-642-45	IC TL1596CPWR	
IC2901	6-700-600-01	IC M95640-WDL6T	
IC2903	8-759-082-58	IC TC7W08FU(TE12R)	
IC2904	8-759-271-88	IC TC7SHU04FU-TE85R	
IC2905	6-702-307-01	IC HD6417190BPZ110BHV	
IC3001	6-701-838-01	IC HY5V16CF-SDR-E1	
IC3002	6-802-293-01	IC MBM29LV160BE-90PBT-58-ER-E1	
IC3101	6-802-336-01	IC MB89097LGA-G-142-ER	
IC4301	8-759-586-19	IC TC7WH123FU(TE12R)	
		< COIL >	
L1006	1-414-770-91	INDUCTOR	4.7uH
L1201	1-469-058-11	INDUCTOR	22uH
L1202	1-469-058-11	INDUCTOR	22uH
L1203	1-469-058-11	INDUCTOR	22uH
L1204	1-469-058-11	INDUCTOR	22uH
L1205	1-469-058-11	INDUCTOR	22uH
L1206	1-469-058-11	INDUCTOR	22uH
L1207	1-414-757-11	INDUCTOR	100uH
L1208	1-414-757-11	INDUCTOR	100uH
L1209	1-414-757-11	INDUCTOR	100uH
L1210	1-469-058-11	INDUCTOR	22uH
L1211	1-469-058-11	INDUCTOR	22uH
L1212	1-469-058-11	INDUCTOR	22uH
L1301	1-414-771-91	INDUCTOR	10uH
L1302	1-414-771-91	INDUCTOR	10uH
L1303	1-414-771-91	INDUCTOR	10uH
L1304	1-469-058-11	INDUCTOR	22uH
L1601	1-414-754-11	INDUCTOR	10uH
L1602	1-414-771-91	INDUCTOR	10uH
L1701	1-469-525-91	INDUCTOR	10uH
L1801	1-469-525-91	INDUCTOR	10uH
L1901	1-469-525-91	INDUCTOR	10uH
L1902	1-469-525-91	INDUCTOR	10uH
L1903	1-469-525-91	INDUCTOR	10uH
L2001	1-469-525-91	INDUCTOR	10uH
L2002	1-469-525-91	INDUCTOR	10uH
L2101	1-412-936-11	INDUCTOR	0.56uH
L2102	1-414-246-11	INDUCTOR	1.8uH
L2103	1-469-525-91	INDUCTOR	10uH
L2104	1-469-525-91	INDUCTOR	10uH
L2105	1-469-525-91	INDUCTOR	10uH
L2401	1-414-771-91	INDUCTOR	10uH
L2901	1-469-525-91	INDUCTOR	10uH
L4301	1-414-771-91	INDUCTOR	10uH
		< TRANSISTOR >	
Q1001	8-729-054-44	TRANSISTOR	RN2902FE(TPLR3)
Q1002	8-729-053-57	TRANSISTOR	RN1902FE(TPLR3)
Q1003	8-729-050-79	TRANSISTOR	UNRL11100AS0
Q1201	8-729-041-23	TRANSISTOR	NDS356AP
Q1202	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q1901	8-729-050-74	TRANSISTOR	EC3101C-PM-TL
Q2001	8-759-054-48	TRANSISTOR	UP04601008S0
Q2002	8-729-050-91	TRANSISTOR	UNRL21300AS0
Q2003	8-729-049-91	TRANSISTOR	2SA2018H-T2L
Q2004	8-729-050-74	TRANSISTOR	EC3101C-PM-TL

Ref. No.	Part No.	Description			
Q2101	8-729-054-49	TRANSISTOR	UP04401008S0		
Q2102	8-729-050-74	TRANSISTOR	EC3101C-PM-TL		
Q2103	8-729-050-74	TRANSISTOR	EC3101C-PM-TL		
Q2104	8-729-054-49	TRANSISTOR	UP04401008S0		
Q2401	8-729-049-91	TRANSISTOR	2SA2018H-T2L		
Q2402	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
Q2501	8-729-050-89	TRANSISTOR	UNRL21100AS0		
Q2701	8-729-050-79	TRANSISTOR	UNRL11100AS0		
Q2703	8-729-050-91	TRANSISTOR	UNRL21300AS0		
Q2704	8-729-050-76	TRANSISTOR	EC3201C-PM-TL		
Q2903	8-729-050-91	TRANSISTOR	UNRL21300AS0		
Q2904	8-729-050-81	TRANSISTOR	UNRL11300AS0		
Q2905	8-729-050-74	TRANSISTOR	EC3101C-PM-TL		
Q2906	8-729-050-89	TRANSISTOR	UNRL21100AS0		
Q2909	8-729-050-91	TRANSISTOR	UNRL21300AS0		
Q2910	8-729-050-81	TRANSISTOR	UNRL11300AS0		
Q2911	8-729-054-49	TRANSISTOR	UP04401008S0		
Q2912	8-729-049-91	TRANSISTOR	2SA2018H-T2L		
Q3101	8-729-041-43	TRANSISTOR	HN1L02FU(TE85R)		
Q4301	8-729-050-91	TRANSISTOR	UNRL21300AS0		
Q4302	8-729-050-74	TRANSISTOR	EC3101C-PM-TL		
Q4303	8-729-050-91	TRANSISTOR	UNRL21300AS0		
		< RESISTOR >			
R1002	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R1003	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R1004	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R1021	1-218-935-11	RES-CHIP	33	5%	1/16W
R1022	1-218-935-11	RES-CHIP	33	5%	1/16W
R1023	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1202	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1203	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1204	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R1205	1-218-966-11	RES-CHIP	12K	5%	1/16W
R1206	1-218-985-11	RES-CHIP	470K	5%	1/16W
R1207	1-218-990-11	SHORT CHIP	0		
R1208	1-218-990-11	SHORT CHIP	0		
R1209	1-208-635-11	RES-CHIP	10	5%	1/16W
R1210	1-218-932-11	RES-CHIP	18	5%	1/16W
R1211	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1212	1-218-932-11	RES-CHIP	18	5%	1/16W
R1213	1-220-160-11	RES-CHIP	13	5%	1/16W
R1214	1-208-455-11	RES-CHIP	5.6	5%	1/16W
R1215	1-220-160-11	RES-CHIP	13	5%	1/16W
R1216	1-208-455-11	RES-CHIP	5.6	5%	1/16W
R1220	1-220-160-11	RES-CHIP	13	5%	1/16W
R1221	1-208-455-11	RES-CHIP	5.6	5%	1/16W
R1222	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1229	1-218-981-11	RES-CHIP	220K	5%	1/16W
R1230	1-218-989-11	RES-CHIP	1M	5%	1/16W
R1301	1-218-977-11	RES-CHIP	100K	5%	1/16W
R1302	1-216-864-11	METAL CHIP	0	5%	1/16W
R1303	1-218-945-11	RES-CHIP	220	5%	1/16W
R1304	1-218-945-11	RES-CHIP	220	5%	1/16W
R1305	1-218-945-11	RES-CHIP	220	5%	1/16W
R1306	1-218-945-11	RES-CHIP	220	5%	1/16W
R1307	1-218-945-11	RES-CHIP	220	5%	1/16W
R1308	1-218-945-11	RES-CHIP	220	5%	1/16W
R1309	1-218-945-11	RES-CHIP	220	5%	1/16W

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Ref. No.	Part No.	Description			
R1310	1-218-945-11	RES-CHIP	220	5%	1/16W
R1311	1-218-945-11	RES-CHIP	220	5%	1/16W
R1312	1-218-945-11	RES-CHIP	220	5%	1/16W
R1313	1-218-945-11	RES-CHIP	220	5%	1/16W
R1314	1-218-945-11	RES-CHIP	220	5%	1/16W
R1315	1-218-945-11	RES-CHIP	220	5%	1/16W
R1316	1-218-945-11	RES-CHIP	220	5%	1/16W
R1317	1-218-945-11	RES-CHIP	220	5%	1/16W
R1318	1-218-945-11	RES-CHIP	220	5%	1/16W
R1325	1-218-990-11	SHORT CHIP	0		
R1326	1-218-990-11	SHORT CHIP	0		
R1327	1-218-990-11	SHORT CHIP	0		
R1328	1-218-990-11	SHORT CHIP	0		
R1351	1-218-990-11	SHORT CHIP	0		
R1601	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1602	1-216-864-11	METAL CHIP	0	5%	1/16W
R1603	1-218-990-11	SHORT CHIP	0 (PDX10)		
R1604	1-218-990-11	SHORT CHIP	0 (PDX10P)		
R1605	1-218-990-11	SHORT CHIP	0 (PDX10P)		
R1606	1-218-990-11	SHORT CHIP	0 (PDX10)		
R1607	1-218-990-11	SHORT CHIP	0		
R1707	1-218-990-11	SHORT CHIP	0		
R1709	1-216-864-11	METAL CHIP	0	5%	1/16W
R1710	1-218-990-11	SHORT CHIP	0		
R1712	1-216-864-11	METAL CHIP	0	5%	1/16W
R1713	1-218-990-11	SHORT CHIP	0		
R1714	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1715	1-218-953-11	RES-CHIP	1K	5%	1/16W
R1901	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1902	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R1903	1-218-989-11	RES-CHIP	1M	5%	1/16W
R1904	1-218-979-11	RES-CHIP	150K	5%	1/16W
R1905	1-218-939-11	RES-CHIP	68	5%	1/16W
R1906	1-208-920-81	METAL CHIP	24K	0.5%	1/16W
R1907	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1908	1-218-949-11	RES-CHIP	470	5%	1/16W
R1910	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R1911	1-218-965-11	RES-CHIP	10K	5%	1/16W
R1912	1-218-969-11	RES-CHIP	22K	5%	1/16W
R1913	1-208-910-11	METAL CHIP	9.1K	0.5%	1/16W
R1914	1-208-910-11	METAL CHIP	9.1K	0.5%	1/16W
R1915	1-218-969-11	RES-CHIP	22K	5%	1/16W
R1916	1-218-945-11	METAL CHIP	220	0.5%	1/16W
R1917	1-218-945-11	METAL CHIP	220	0.5%	1/16W
R1918	1-218-945-11	METAL CHIP	220	0.5%	1/16W
R1919	1-218-945-11	METAL CHIP	220	0.5%	1/16W
R1922	1-218-990-11	SHORT CHIP	0		
R2001	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2002	1-218-951-11	RES-CHIP	680	5%	1/16W
R2003	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2004	1-218-949-11	RES-CHIP	470	5%	1/16W
R2005	1-218-990-11	SHORT CHIP	0		
R2006	1-218-973-11	RES-CHIP	47K	5%	1/16W
R2007	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2008	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
R2009	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2010	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2101	1-218-990-11	SHORT CHIP	0		
R2103	1-218-990-11	SHORT CHIP	0		
R2104	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2105	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2106	1-218-946-11	RES-CHIP	270	5%	1/16W
R2107	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2108	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2109	1-218-990-11	SHORT CHIP	0		
R2110	1-218-990-11	SHORT CHIP	0		
R2111	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2112	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2113	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2114	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2115	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2116	1-218-941-81	RES-CHIP	100	5%	1/16W
R2117	1-218-947-11	RES-CHIP	330	5%	1/16W
R2118	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2119	1-218-937-11	RES-CHIP	47	5%	1/16W
R2120	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R2121	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R2122	1-218-849-11	METAL CHIP	1.2K	0.5%	1/16W
R2123	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R2124	1-218-849-11	METAL CHIP	1.2K	0.5%	1/16W
R2125	1-218-849-11	METAL CHIP	1.2K	0.5%	1/16W
R2127	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2129	1-218-946-11	RES-CHIP	270	5%	1/16W
R2130	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2131	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2132	1-218-943-11	RES-CHIP	150	5%	1/16W
R2134	1-208-709-11	METAL CHIP	12K	0.5%	1/16W
R2135	1-208-709-11	METAL CHIP	12K	0.5%	1/16W
R2136	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2137	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2138	1-218-864-11	METAL CHIP	5.1K	0.5%	1/16W
R2139	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2141	1-218-938-11	METAL CHIP	56	0.5%	1/16W
R2142	1-218-990-11	SHORT CHIP	0		
R2143	1-218-990-11	SHORT CHIP	0		
R2301	1-218-990-11	SHORT CHIP	0		
R2302	1-218-990-11	SHORT CHIP	0		
R2304	1-218-934-11	RES-CHIP	27	5%	1/16W
R2305	1-218-934-11	RES-CHIP	27	5%	1/16W
R2306	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2307	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2308	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R2309	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R2310	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2311	1-216-295-91	SHORT CHIP	0		
R2315	1-218-990-11	SHORT CHIP	0		
R2403	1-218-990-11	SHORT CHIP	0		
R2404	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2405	1-218-990-11	SHORT CHIP	0		
R2407	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2411	1-218-990-11	SHORT CHIP	0		
R2412	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2413	1-218-990-11	SHORT CHIP	0		
R2415	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2416	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2417	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R2418	1-218-967-11	RES-CHIP	15K	5%	1/16W
R2419	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R2420	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R2423	1-218-990-11	SHORT CHIP	0		

Ref. No.	Part No.	Description			
R2424	1-218-968-11	RES-CHIP	18K	5%	1/16W
R2429	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2431	1-218-946-11	RES-CHIP	270	5%	1/16W
R2434	1-218-990-11	SHORT CHIP	0		
R2436	1-218-969-11	RES-CHIP	22K	5%	1/16W
R2437	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2438	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2501	1-218-941-81	RES-CHIP	100	5%	1/16W
R2502	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2503	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2504	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2505	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2506	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2507	1-218-968-11	RES-CHIP	18K	5%	1/16W
R2508	1-218-968-11	RES-CHIP	18K	5%	1/16W
R2509	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2510	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2511	1-218-985-11	RES-CHIP	470K	5%	1/16W
R2512	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2513	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2514	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2515	1-218-985-11	RES-CHIP	470K	5%	1/16W
R2516	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2517	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2518	1-218-973-11	RES-CHIP	47K	5%	1/16W
R2519	1-218-981-11	RES-CHIP	220K	5%	1/16W
R2520	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2521	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2522	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2523	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2524	1-218-975-11	RES-CHIP	68K	5%	1/16W
R2525	1-218-964-11	RES-CHIP	8.2K	5%	1/16W (PDX10)
R2525	1-218-968-11	RES-CHIP	18K	5%	1/16W (PDX10P)
R2526	1-218-973-11	RES-CHIP	47K	5%	1/16W
R2527	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2528	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2529	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2530	1-218-990-11	SHORT CHIP	0		
R2531	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2532	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2533	1-218-975-11	RES-CHIP	68K	5%	1/16W
R2534	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2535	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2537	1-218-973-11	RES-CHIP	47K	5%	1/16W
R2538	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2717	1-218-935-11	RES-CHIP	33	5%	1/16W
R2718	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2719	1-218-990-11	SHORT CHIP	0		
R2720	1-218-949-11	RES-CHIP	470	5%	1/16W
R2721	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R2722	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2723	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2724	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2727	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2735	1-218-973-11	RES-CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			
R2902	1-218-990-11	SHORT CHIP	0		
R2904	1-218-990-11	SHORT CHIP	0		
R2905	1-218-985-11	RES-CHIP	470K	5%	1/16W
R2906	1-218-985-11	RES-CHIP	470K	5%	1/16W
R2907	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2910	1-218-990-11	SHORT CHIP	0		
R2911	1-218-990-11	SHORT CHIP	0		
R2912	1-218-990-11	SHORT CHIP	0		
R2913	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2914	1-208-645-11	METAL CHIP	27	0.5%	1/16W
R2915	1-208-645-11	METAL CHIP	27	0.5%	1/16W
R2916	1-218-985-11	RES-CHIP	470K	5%	1/16W
R2917	1-218-990-11	SHORT CHIP	0		
R2920	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2921	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2923	1-218-990-11	SHORT CHIP	0		
R2924	1-218-990-11	SHORT CHIP	0		
R2925	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2926	1-218-990-11	SHORT CHIP	0		
R2927	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2929	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2930	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2931	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2932	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2933	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2935	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R2936	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2937	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2938	1-218-949-11	RES-CHIP	470	5%	1/16W
R2939	1-218-937-11	RES-CHIP	47	5%	1/16W
R2945	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2946	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2948	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R2949	1-218-955-11	RES-CHIP	1.5K	5%	1/16W
R2950	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R2951	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R2952	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2953	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R2954	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2955	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2956	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2964	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2965	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R2966	1-218-990-11	SHORT CHIP	0		
R3001	1-218-990-11	SHORT CHIP	0		
R3008	1-218-990-11	SHORT CHIP	0		
R3101	1-218-989-11	RES-CHIP	1M	5%	1/16W
R3102	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3103	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3104	1-218-973-11	RES-CHIP	47K	5%	1/16W
R3105	1-218-990-11	SHORT CHIP	0		
R3106	1-219-570-11	METAL CHIP	10M	5%	1/10W
R3107	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3108	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3109	1-218-973-11	RES-CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			
R3110	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3111	1-218-989-11	RES-CHIP	1M	5%	1/16W
R3112	1-218-953-11	RES-CHIP	1K	5%	1/16W
R3113	1-218-989-11	METAL CHIP	1M	0.5%	1/16W
R3114	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3115	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3116	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R3117	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3120	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R3121	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R3123	1-218-989-11	RES-CHIP	1M	5%	1/16W
R3124	1-218-977-11	RES-CHIP	100K	5%	1/16W
R3128	1-218-990-11	SHORT CHIP	0		
R4301	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4302	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4303	1-218-966-11	RES-CHIP	12K	5%	1/16W
R4304	1-218-967-11	RES-CHIP	15K	5%	1/16W
R4305	1-218-981-11	RES-CHIP	220K	5%	1/16W
R4306	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5104	1-218-990-11	SHORT CHIP	0		
R5105	1-218-990-11	SHORT CHIP	0		
R5106	1-218-990-11	SHORT CHIP	0		
R5107	1-218-977-11	RES-CHIP	100K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB2101	1-234-377-21	RES, NETWORK 4.7KX4		(1005)	
RB2501	1-234-381-21	RES, NETWORK 100KX4		(1005)	
RB2502	1-234-381-21	RES, NETWORK 100KX4		(1005)	
RB2503	1-234-381-21	RES, NETWORK 100KX4		(1005)	
RB2901	1-234-381-21	RES, NETWORK 100KX4		(1005)	
RB3101	1-234-378-21	RES, NETWORK 10KX4		(1005)	
RB3102	1-234-378-21	RES, NETWORK 10KX4		(1005)	
RB3103	1-234-375-21	RES, NETWORK 1KX4		(1005)	
RB3104	1-234-375-21	RES, NETWORK 1KX4		(1005)	
RB3106	1-234-375-21	RES, NETWORK 1KX4		(1005)	
RB3107	1-234-375-21	RES, NETWORK 1KX4		(1005)	
RB3110	1-234-375-21	RES, NETWORK 1KX4		(1005)	
RB3111	1-234-375-21	RES, NETWORK 1KX4		(1005)	
		< VARISTOR >			
VD2901	1-801-862-11	VARISTOR, CHIP			
VD2902	1-801-862-11	VARISTOR, CHIP			
		< VIBRATOR >			
X1201	1-781-632-21	VIBRATOR, CRYSTAL (66MHz) (PDX10)			
X1201	1-781-633-21	VIBRATOR, CRYSTAL (54MHz) (PDX10P)			
X2101	1-781-045-21	VIBRATOR, CRYSTAL (24.576MHz)			
X2501	1-781-044-21	VIBRATOR, CRYSTAL (20MHz)			
X2901	1-781-620-21	VIBRATOR, CERAMIC (48MHz)			
X3101	1-795-244-11	VIBRATOR, CERAMIC (10MHz)			
X3102	1-767-994-42	VIBRATOR, CRYSTAL (32.768kHz)			

Ref. No.	Part No.	Description			
	A-7078-395-A	XD-002 BOARD, COMPLETE			
		**********************			
		< CAPACITOR >			
C401	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C402	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C403	1-109-935-11	TANTAL. CHIP	4.7uF	20%	6.3V
C404	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C407	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C408	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C410	1-104-919-11	TANTAL. CHIP	10uF	20%	25V
C413	1-110-618-11	ELECT	12uF	20%	63V
C414	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C415	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C416	1-110-618-11	ELECT	12uF	20%	63V
C417	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C418	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C419	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C420	1-104-920-11	TANTAL. CHIP	4.7uF	20%	35V
C421	1-113-981-11	TANTAL. CHIP	22uF	20%	20V
C422	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C423	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
		< CONNECTOR >			
CN401	1-766-343-21	CONNECTOR, FFC/FPC 13P			
		< DIODE >			
D402	8-719-987-21	DIODE SB02-09CP-TB			
D403	8-719-158-49	DIODE MA8120-TX			
D404	8-719-158-49	DIODE MA8120-TX			
		< IC >			
IC401	8-759-521-35	IC TL5001CDR			
IC402	8-759-478-03	IC RN5RL50AA-TL			
		< COIL >			
L400	1-412-058-11	INDUCTOR CHIP	10uH		
L401	1-416-906-11	INDUCTOR	33uH		
L402	1-414-405-11	INDUCTOR	150uH		
L403	1-414-854-11	INDUCTOR	1MH		
		< TRANSISTOR >			
Q402	8-729-117-32	TRANSISTOR	2SC4177-T1L5L6		
Q403	8-729-117-32	TRANSISTOR	2SC4177-T1L5L6		
Q404	8-729-033-65	TRANSISTOR	2SJ204-T1B		
Q405	8-729-117-32	TRANSISTOR	2SC4177-T1L5L6		
Q406	8-729-117-32	TRANSISTOR	2SC4177-T1L5L6		
Q407	8-729-117-32	TRANSISTOR	2SC4177-T1L5L6		
Q408	8-729-041-23	TRANSISTOR	NDS356AP		
Q409	8-729-117-32	TRANSISTOR	2SC4177-T1L5L6		
Q410	8-729-140-63	TRANSISTOR	2SA1611T1-M5M6		
Q411	8-729-042-92	TRANSISTOR	2SK1470-TD		

Ref. No.	Part No.	Description			
		< RESISTOR >			
R402	1-218-970-11	RES-CHIP	27K	5%	1/16W
R403	1-218-970-11	RES-CHIP	27K	5%	1/16W
R404	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R405	1-218-978-11	METAL CHIP	120K	0.5%	1/16W
R406	1-218-978-11	RES-CHIP	120K	5%	1/16W
R407	1-218-981-11	RES-CHIP	220K	5%	1/16W
R409	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R410	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R411	1-218-985-11	RES-CHIP	470K	5%	1/16W
R412	1-218-965-11	RES-CHIP	10K	5%	1/16W
R413	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R414	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R415	1-218-977-11	RES-CHIP	100K	5%	1/16W
R416	1-218-973-11	RES-CHIP	47K	5%	1/16W
R417	1-218-941-81	RES-CHIP	100	5%	1/16W
R418	1-218-990-11	SHORT CHIP	0		
R420	1-208-715-11	METAL CHIP	22K	0.5%	1/16W
R421	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
R422	1-208-701-11	METAL CHIP	5.6K	0.5%	1/16W
R423	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
	A-7078-396-A	XK-001 BOARD, COMPLETE **********************			
		< CONNECTOR >			
CN001	1-785-946-21	CONNECTOR 3P			
		< SWITCH >			
S001	1-762-650-21	SWITCH, SLIDE (LOW CUT INPUT1 ON/OFF)			
S002	1-762-650-21	SWITCH, SLIDE (LOW CUT INPUT2 ON/OFF)			
	A-7078-393-A	XM-002 BOARD, COMPLETE ***********************			
		< CAPACITOR >			
C200	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C201	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C202	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C203	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C204	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C205	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C206	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C207	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C208	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C209	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C210	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C211	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C212	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C213	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C214	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C215	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C216	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C217	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C218	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C219	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C220	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C221	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C222	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C223	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C224	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C226	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C228	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C231	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C232	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C233	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C234	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C235	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C236	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C237	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C238	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C241	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C300	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C302	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C303	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C304	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C305	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C306	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C307	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C308	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C309	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C310	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C311	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C312	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C313	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C314	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C315	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C316	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C317	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C318	1-125-926-91	TANTAL. CHIP	4.7uF	20%	6.3V
C319	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C320	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C321	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C322	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C323	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C326	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C328	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C331	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C334	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN200	1-568-006-11	CONNECTOR, XLR TYPE 3P (INPUT 1)			
CN201	1-779-332-11	CONNECTOR, FFC/FPC 16P			
CN202	1-785-946-21	CONNECTOR 3P			
CN300	1-568-006-11	CONNECTOR, XLR TYPE 3P (INPUT 2)			
CN301	1-779-332-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D001	8-719-073-01	DIODE	MA111-(K8).S0		
D002	8-719-073-01	DIODE	MA111-(K8).S0		
D003	8-719-073-01	DIODE	MA111-(K8).S0		
D004	8-719-073-01	DIODE	MA111-(K8).S0		
D200	8-719-073-01	DIODE	MA111-(K8).S0		

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Ref. No.	Part No.	Description			
D201	8-719-073-01	DIODE MA111-(K8).S0			
D202	8-719-073-01	DIODE MA111-(K8).S0			
D203	8-719-073-01	DIODE MA111-(K8).S0			
		< IC >			
IC200	8-759-111-56	IC uPC4572G2-E2			
IC201	8-759-111-56	IC uPC4572G2-E2			
IC203	8-759-075-66	IC TA75S01F(TE85R)			
IC204	6-702-589-01	IC M52065FP-70BD			
IC205	8-759-111-56	IC uPC4572G2-E2			
IC300	8-759-111-56	IC uPC4572G2-E2			
IC301	8-759-111-56	IC uPC4572G2-E2			
IC303	8-759-075-66	IC TA75S01F(TE85R)			
		< COIL >			
L200	1-414-398-11	INDUCTOR	10uH		
L201	1-414-398-11	INDUCTOR	10uH		
L202	1-414-398-11	INDUCTOR	10uH		
L203	1-414-854-11	INDUCTOR	1MH		
L300	1-414-398-11	INDUCTOR	10uH		
L301	1-414-398-11	INDUCTOR	10uH		
L302	1-414-398-11	INDUCTOR	10uH		
L303	1-414-854-11	INDUCTOR	1MH		
		< RESISTOR >			
R200	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R201	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R202	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R203	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R204	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R205	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R206	1-216-019-00	METAL CHIP	56	5%	1/10W
R207	1-216-009-91	RES-CHIP	22	5%	1/10W
R208	1-216-295-91	SHORT CHIP	0		
R209	1-216-047-91	RES-CHIP	820	5%	1/10W
R210	1-216-047-91	RES-CHIP	820	5%	1/10W
R211	1-220-222-11	RES-CHIP	4.7K	5%	1/2W
R212	1-218-977-11	RES-CHIP	100K	5%	1/16W
R213	1-218-977-11	RES-CHIP	100K	5%	1/16W
R214	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R215	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R216	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
R219	1-208-884-81	METAL CHIP	750	0.5%	1/16W
R220	1-208-647-11	METAL CHIP	33	0.5%	1/16W
R221	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R222	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R223	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R224	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R225	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R226	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R227	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R232	1-218-965-11	RES-CHIP	10K	5%	1/16W
R233	1-218-971-11	RES-CHIP	33K	5%	1/16W
R234	1-218-965-11	RES-CHIP	10K	5%	1/16W
R235	1-216-295-91	SHORT CHIP	0		
R236	1-216-295-91	SHORT CHIP	0		
R237	1-218-971-11	RES-CHIP	33K	5%	1/16W
R239	1-218-977-11	RES-CHIP	100K	5%	1/16W
R240	1-218-977-11	RES-CHIP	100K	5%	1/16W
R241	1-218-973-11	RES-CHIP	47K	5%	1/16W
R242	1-218-975-11	RES-CHIP	68K	5%	1/16W
R243	1-218-965-11	RES-CHIP	10K	5%	1/16W
R244	1-218-973-11	RES-CHIP	47K	5%	1/16W
R245	1-218-973-11	RES-CHIP	47K	5%	1/16W
R300	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R301	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R302	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R303	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R304	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R305	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R306	1-216-019-00	METAL CHIP	56	5%	1/10W
R307	1-216-009-91	RES-CHIP	22	5%	1/10W
R308	1-216-295-91	SHORT CHIP	0		
R309	1-216-047-91	RES-CHIP	820	5%	1/10W
R310	1-216-047-91	RES-CHIP	820	5%	1/10W
R311	1-220-222-11	RES-CHIP	4.7K	5%	1/2W
R312	1-218-977-11	RES-CHIP	100K	5%	1/16W
R313	1-218-977-11	RES-CHIP	100K	5%	1/16W
R314	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R315	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R316	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
R319	1-208-884-81	METAL CHIP	750	0.5%	1/16W
R320	1-208-647-11	METAL CHIP	33	0.5%	1/16W
R321	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R322	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R323	1-208-721-11	METAL CHIP	39K	0.5%	1/16W
R324	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R325	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R326	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R327	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R330	1-218-973-11	RES-CHIP	47K	5%	1/16W
R331	1-218-975-11	RES-CHIP	68K	5%	1/16W
R332	1-218-965-11	RES-CHIP	10K	5%	1/16W
R333	1-216-295-91	SHORT CHIP	0		
R338	1-216-295-91	SHORT CHIP	0		
R339	1-218-977-11	RES-CHIP	100K	5%	1/16W
R340	1-218-977-11	RES-CHIP	100K	5%	1/16W

	A-7078-394-A	XS-002 BOARD, COMPLETE **********************			
		< CONNECTOR >			
CN100	1-766-343-21	CONNECTOR, FFC/FPC 13P			
CN101	1-779-332-11	CONNECTOR, FFC/FPC 16P			
CN102	1-779-332-11	CONNECTOR, FFC/FPC 16P			
CN103	1-779-806-21	CONNECTOR 8P			
		< RESISTOR >			
R101	1-218-990-11	SHORT CHIP	0		
R102	1-218-969-11	RES-CHIP	22K	5%	1/16W
		< SWITCH >			
S100	1-571-640-11	SWITCH, SLIDE (INPUT1 +48V ON/OFF)			
S102	1-762-824-11	SWITCH, SLIDE (INPUT1 REC CH SELECT CH1, CH2/CH1)			
S103	1-762-825-11	SWITCH, SLIDE (INPUT1 INPUT LEVEL LINE/MIC/MIC ATT)			
S104	1-762-825-11	SWITCH, SLIDE (INPUT2 INPUT LEVEL LINE/MIC/MIC ATT)			
S105	1-571-640-11	SWITCH, SLIDE (INPUT2 +48V ON/OFF)			

Ref. No.	Part No.	Description
		ACCESSORIES ************
⚠	1-475-599-14	ADAPTOR, AC (AC-L10A) (PDX10P)
⚠	1-475-599-45	ADAPTOR, AC (AC-L10A) (PDX10)
	1-475-950-53	REMOTE COMMANDER (RMT-811)
	1-543-798-11	FILTER, CLAMP (FERRITE CORE)
*⚠	1-575-131-11	CORD, POWER (PDX10P)
⚠	1-790-107-22	CORD, POWER (PDX10)
	1-757-294-11	CORD, CONNECTION (USB 5P)
	1-824-097-11	CORD, CONNECTION (AV MULCH) (1.5m)
	3-053-056-01	LID, BATTERY CASE (FOR RMT-811)
	3-072-414-01	SPVD-008 (USB DRIVER CD-ROM) (PDX10P)
	3-072-654-01	SPVD-008 (I) (USB DRIVER CD-ROM) (PDX10)
	3-073-861-01	CLOTH (TL), CLEANING
	3-077-115-11	MANUAL, INSTRUCTION (ENGLISH) (PDX10)
	3-077-115-21	MANUAL, INSTRUCTION (FRENCH) (PDX10:Canadian)
	3-077-115-31	MANUAL, INSTRUCTION (ENGLISH) (PDX10P)
	3-077-115-41	MANUAL, INSTRUCTION (FRENCH) (PDX10P)
	3-077-115-51	MANUAL, INSTRUCTION (GERMAN) (PDX10P)
	3-077-115-61	MANUAL, INSTRUCTION (ITALIAN) (PDX10P)
	3-077-115-71	MANUAL, INSTRUCTION (SPANISH) (PDX10P)
	3-987-015-01	BELT (S), SHOULDER
	8-814-298-90	MICROPHONE ECM-NV1
	A-7013-029-A	XLR BLOCK ASSY
	A-7024-735-A	MEMORY STICK (MSA-8A)
	X-3952-595-1	CAP ASSY, LENS
	X-3952-789-1	HOOD (WIDE) ASSY
		NP-FM50 BATTERY PACK (NOT SUPPLIED)

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

COVER

SECTION 6
ADJUSTMENTS

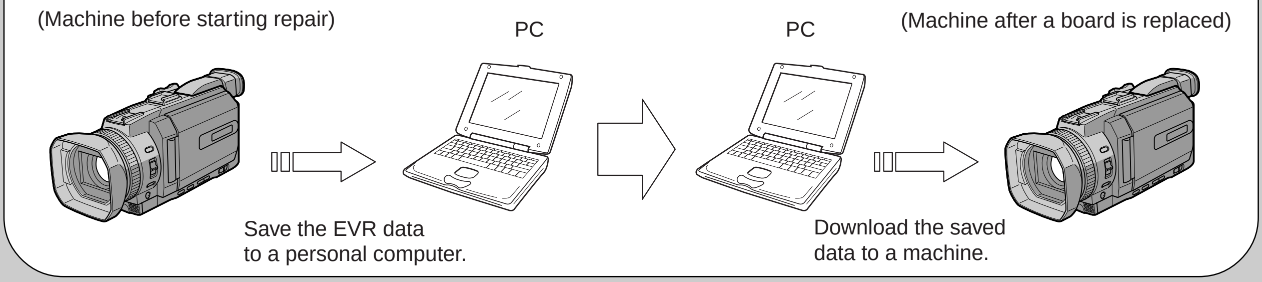
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

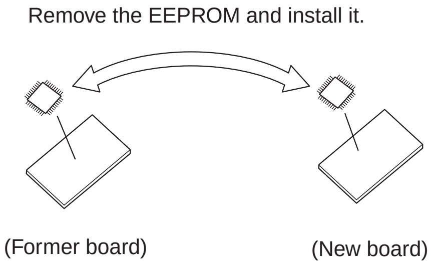
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.


(Machine before starting repair)
PC
PC
(Machine after a board is replaced)
Save the EVR data to a personal computer.
Download the saved data to a machine.

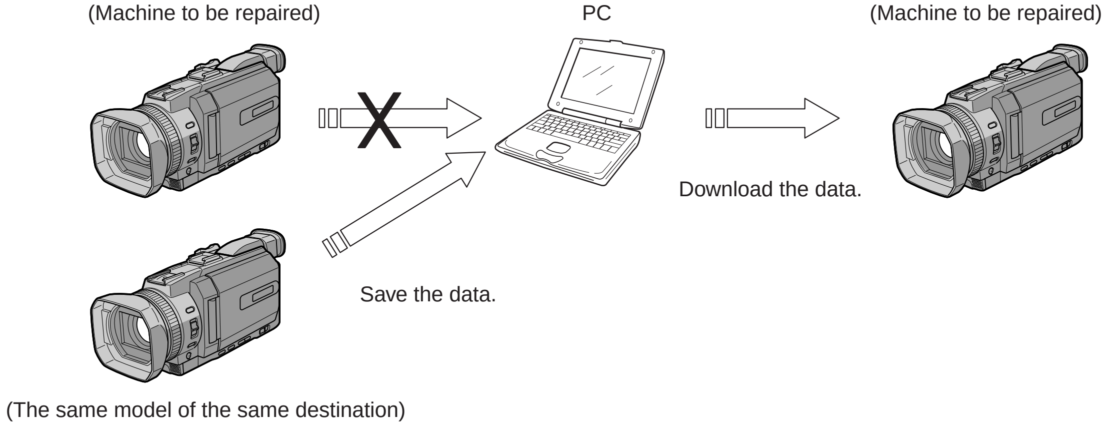
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.


Remove the EEPROM and install it.
(Former board)
(New board)

Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.


(Machine to be repaired)
PC
(Machine to be repaired)
X
Download the data.
Save the data.
(The same model of the same destination)

After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 6-3 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards.

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Note: When replacing the drum assembly or the mechanism deck, initialize the data of the drum r rotation counted time. (Refer to “Record of Use check” of “6-4. SERVICE MODE”)

Adjustment Section	Adjustment	Replaced parts																					
		Block replacement								Parts replacement													
		Lens device	Laser unit D501	Mechanism deck **Note**	LCD block LCD901 (LCD panel (LCD))	LCD block ND901 Fluorescent tube (LCD))	LCD block TA901 (Touch panel)	Mechanism deck M901 (Drum assy) **Note**	Mechanism deck M902 (Capstan motor)	CD-389 board IC100,101,105 (prism block (CCD imager))	CD-389 board IC102,103,104 (S/H)	VC-318 board IC1202, X1201 (Timing generator)	VC-318 board IC1203,1204,1205 (A/D conv.)	VC-318 board IC1801 (EVR)	VC-318 board IC2101 (DV signal process)	VC-318 board IC1901 (EQ, A/D CONV., PLL)	VC-318 board IC1902 (REC/PB AMP)	DB-016 board IC7001 (VIDEO IN/OUT)	DB-016 board IC4201 (LCD driver (EVF))	DB-016 board IC4202 (Timing generator (EVF))	SE-132 board SE4001/4002 (PITCH/YAW sensor)	PD-191 board IC5701 (LCD driver (LCD))	PD-191 board IC5702 (Timing generator (LCD))
Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F page data	Initialization of A, D page data																						
	Initialization of 8, C page data																						
	Initialization of E, F, 1E, 1F page data																						
	Initialization of B, 1B page data																						
Camera	66MHz/54MHz origin oscillation adj.											●		●									
	HALL adj.	●																					
	MR adj.	●																					
	Flange back adj.	●								●													
	AWB standard data input									●	●		●										
	MAX GAIN adj.									●	●		●										
	F No. & ND light quantity standard data input	●																					
	LV standard data input									●	●		●										
	Auto white balance adj.									●	●		●										
	Color reproduction adj.									●	●		●										
	PSD sensor gain adj.	●																					
	Angular velocity sensor sensitivity adj.	●																			●		
	Mechanical shutter adj	●																					
	AF laser output adj.		●																				
	AF laser axis adj.		●																				
EVF	VCO adj.																		●	●			
	RGB AMP adj.																		●				
	Contrast adj.														●				●				
	Backlight adj.																		●				
LCD	VCO adj.																					●	●
	RGB AMP adj.																					●	
	Contrast adj.														●							●	
	COM AMP adj.																					●	
	V COM adj.				●																	●	
	White balance adj.				●	●																●	
Mechanism	Tape path adj.			●				●	●														
System control	Touch panel adj.						●																
	Serial No. input																						
Servo, RF	CAP FG duty adj.			●					●														
	Switching position adj.			●				●															
	AGC center level adj.			●				●								●	●						
	APC & AEQ adj.			●				●								●	●						
	PLL f_0 & LPF f_0 Fine adj.			●				●								●	●						
Video	Chroma BPF f_0 adj.																	●					
	S VIDEO OUT Y level adj.														●			●					
	S VIDEO OUT Chroma level adj.														●			●					

Table. 6-1-1 (1).

• Adjusting items when replacing a board or EEPROM

When replacing a board or EFPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts							
		Board replacement					EEPROM replacement		
		CD-389 board (COMPLETE)	SE-132 board (COMPLETE)	DB-016 board (COMPLETE)	PD-191 board (COMPLETE)	VC-318 board (COMPLETE)	VC-318 board IC2502 (EEPROM)	VC-318 board IC2901 (EEPROM)	Supporting
Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F page data	Initialization of A, D page data					●		●	
	Initialization of 8, C page data					●	●		
	Initialization of E, F, 1E, 1F page data					●	●		
	Initialization of B, 1B page data					●		●	
Camera	66MHz/54MHz origin oscillation adj.					●	●		
	HALL adj.					●	●		●
	MR adj.					●	●		●
	Flange back adj.					●	●		●
	AWB standard data input	●				●	●		●
	MAX GAIN adj.	●				●	●		●
	F No. & ND light quantity standard data input					●	●		●
	LV standard data input	●				●	●		●
	Auto white balance adj.	●				●	●		●
	Color reproduction adj.	●				●	●		
	PSD sensor gain adj.					●	●		
	Angular velocity sensor sensitivity adj.		●			●	●		
	Mechanical shutter adj					●	●		●
	AF laser output adj.					●	●		●
	AF laser axis adj.								●
EVF	VCO adj.			●		●	●		
	RGB AMP adj.			●		●	●		
	Contrast adj.			●		●	●		
	Backlight adj.			●		●	●		
LCD	VCO adj.				●	●	●		
	RGB AMP adj.				●	●	●		
	Contrast adj.				●	●	●		
	COM AMP adj.				●	●	●		
	V COM adj.				●	●	●		
	White balance adj.				●	●	●		
Mechanism	Tape path adj.								
System control	Touch panel adj.					●		●	
	Serial No. input					●	●		
Servo, RF	CAP FG duty adj.					●	●		●
	Switching position adj.					●	●		●
	AGC center level adj.					●	●		●
	APC & AEQ adj.					●	●		●
	PLL f_0 & LPF f_0 Fine adj.					●	●		●
Video	Chroma BPF f_0 adj.			●		●	●		
	S VIDEO OUT Y level adj.			●		●	●		
	S VIDEO OUT Chroma level adj.			●		●	●		

Table. 6-1-1 (2).

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6-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Regulated power supply
- Color monitor
- Digital voltmeter
- Vectorscope

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note1)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	CPC-8jig	J-6082-388-A	For adjusting the video section For adjusting the viewfinder system
J-9	Extension cable (60P 0.5mm)	J-6082-446-A	For extension between the CD-386 board (CN100) – VC-318 board (CN1201)
J-10	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-11	Camera table	J-6082-384-A	For adjusting the flange back
J-12	CPC jig for LCD panel	J-6082-529-A	For adjusting the LCD system
J-13	Background paper	J-2501-130-A	For AF laser output adjustment
J-14	Cleaning fluid	Y-2031-001-0	
J-15	Wiping cloth	7-741-900-53	
J-16	Super-fine applicator (made by Nippon Applicator (P752D))	–	
J-17	Mirror (small oval type)	J-6080-840-A	Tape path adjustment
J-18	Tracking tape (XH2-1A1) (NTSC/PAL)	8-967-999-03	Tape path adjustment
J-19	Mini DV torque cassette	J -6082-360-A	
J-20	TG1 adjustment jig (FWD position adjustment)	J -6082-492-A	
J-21	TG1 FWD adjustment screwdriver	J -6082-364-A	For TG1 FWD position adjustment
J-22	Dummy drum (for TG36) (J mechanism)	J -6082-490-A	
J-23	TG36 gauge	J -6082-491-A	
J-24	Torque screwdriver	J -9049-330-A	
J-25	Tape path screwdriver	J -6082-026-A	For tape path adjustment
J-26	Mode Selector II	J -6082-282-B	General adjustment (ROM version 1.7)
J-27	Mode Selector II conversion board (J)	J -6082-493-A	
J-28	Mode Selector II ROM (supporting J mechanism) (Note 2)	J -6082-314-E	ROM for Mode Selector II

Note1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note2: This is the ROM used for upgrading the version of Mode Selector II to enable it to be used for the J mechanism.

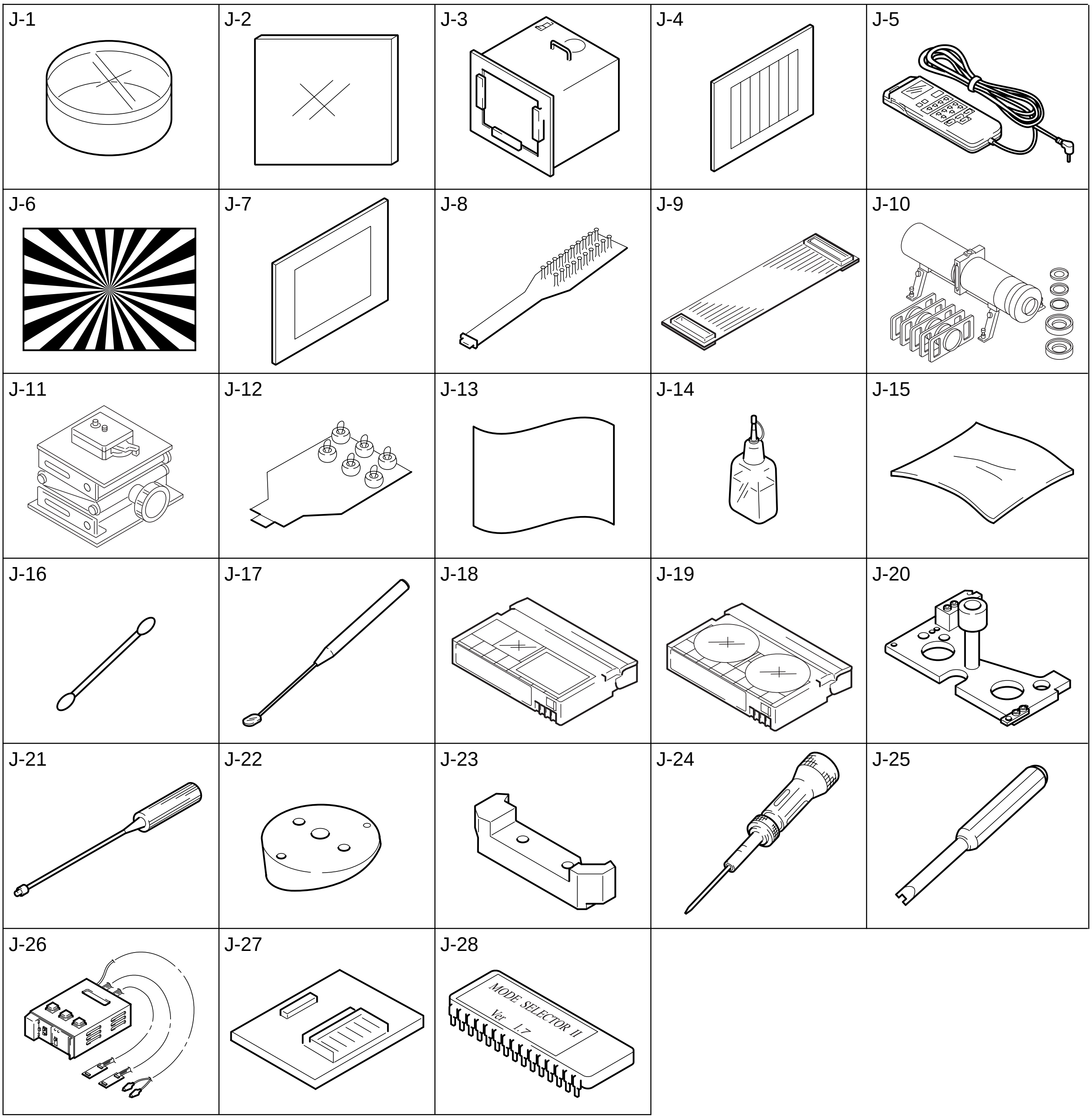

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12
J-13
J-14
J-15
J-16
J-17
J-18
J-19
J-20
J-21
J-22
J-23
J-24
J-25
J-26
J-27
J-28
MODE SELECTOR II
Ver 1.7

Fig. 6-1-1.

1-1-2. Preparations

Note1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note3: Before performing the adjustments, check the data of page: 0, address: 10 is “00”. If not, set data: 00 to this address.

1) Connect the equipment for adjustments according to Fig. 6-1-3.

Note4: As removing the cabinet (R) assembly (removing CN5203 of the CK-134 board) means removing the lithium 3V power supply (BT5201 on the CK-134 board), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. But the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the lithium 3V power supply is removed. (Refer to “6-4.Service Mode” for the self-diagnosis data and the data on history of use.)

Note5: Setting the “Forced Camera Power ON” Mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button.

The above procedure will enable the camera power to be turned on with the control switch block (PS-1870) removed. After completing adjustments, be sure to exit the “Forced Camera Power ON Mode”.

Note6: Exiting the “Forced Camera Power ON” Mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

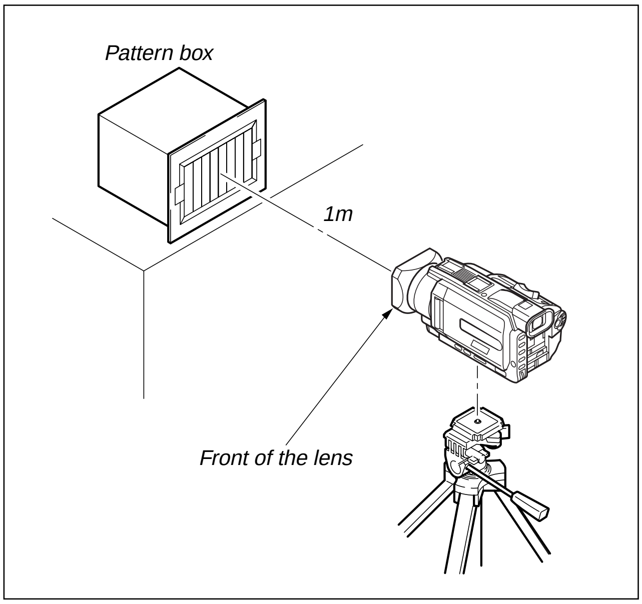


Fig. 6-1-2.

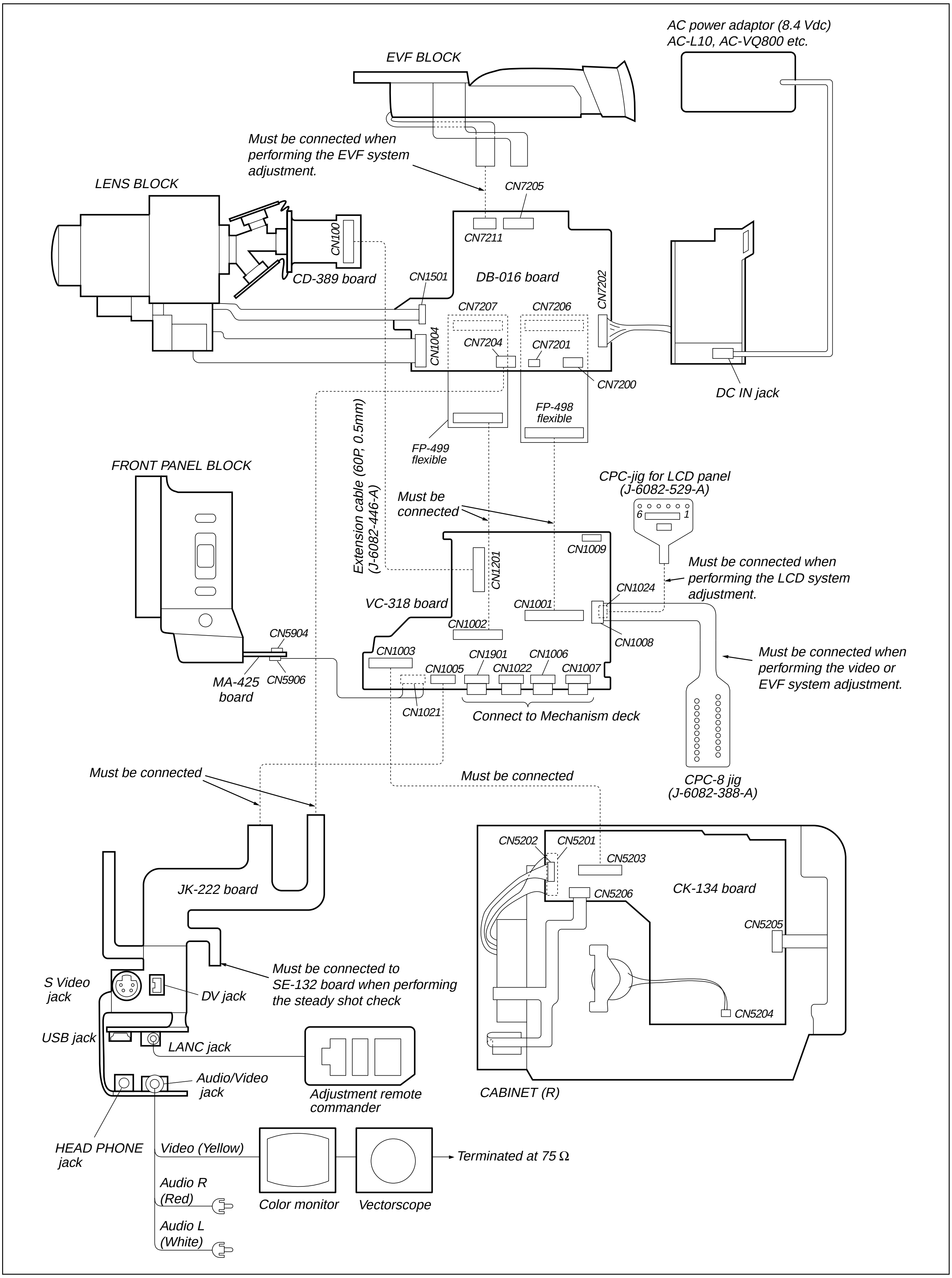

AC power adaptor (8.4 Vdc)
AC-L10, AC-VQ800 etc.
EVF BLOCK
Must be connected when performing the EVF system adjustment.
CN7205
LENS BLOCK
CN7211
CN100
CD-389 board
CN1501
DB-016 board
CN7202
CN7207
CN7206
CN1004
CN7204
CN7201
CN7200
DC IN jack
FP-498 flexible
FP-499 flexible
Extension cable (60P, 0.5mm) (J-6082-446-A)
FRONT PANEL BLOCK
Must be connected
CPC-jig for LCD panel (J-6082-529-A)
6
1
CN1009
CN1201
Must be connected when performing the LCD system adjustment.
CN1024
VC-318 board
CN1001
CN1002
CN5904
CN1008
Must be connected when performing the video or EVF system adjustment.
CN1003
CN1901
CN1006
MA-425 board
CN5906
CN1005
CN1022
CN1007
CN1021
Connect to Mechanism deck
Must be connected
Must be connected
CPC-8 jig (J-6082-388-A)
CN5202
CN5201
CN5203
JK-222 board
CN5206
CK-134 board
CN5205
Must be connected to SE-132 board when performing the steady shot check
S Video jack
DV jack
CN5204
USB jack
LANC jack
Audio/Video jack
Adjustment remote commander
CABINET (R)
HEAD PHONE jack
Video (Yellow)
Terminated at 75 Ω
Audio R (Red)
Color monitor
Vectorscope
Audio L (White)

Fig. 6-1-3.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER (PS-1870 block) .... CAMERA
2. FOCUS (FP-504 flexible) .... MANUAL
3. AUTO LOCK (CK-134 board) .... AUTO LOCK
4. BACK LIGHT (CK-134 board) .... OFF
5. SPOT LIGHT (CK-134 board) .... OFF
6. ZEBRA (CK-134 board) .... OFF
7. AUTO SHUTTER (Menu setting) .... OFF
8. SETUP (Menu setting) 0%
9. DIGITAL ZOOM (Menu setting) .... OFF
10. 16:9 WIDE (Menu setting) .... OFF
11. STEADY SHOT (Menu setting) .... OFF
12. DEMO MODE(Menu setting) .... OFF
13. DIGITAL EFFECT (Touch panel setting) .... OFF

2. Order of Adjustments

Basically carry out adjustments in the order given.

Color bar chart (Color reproduction adjustment frame)

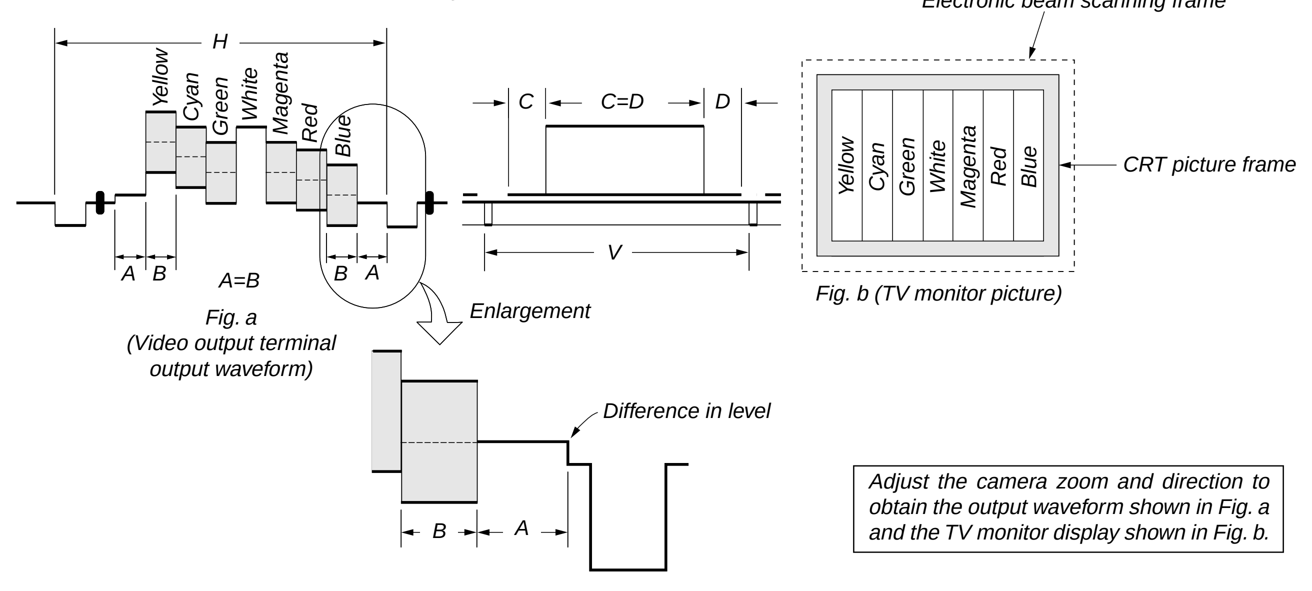

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
C
C=D
D
V
Electronic beam scanning frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame
Enlargement
Difference in level
B
A

Fig. a (Video output terminal output waveform)

Fig. b (TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 6-1-4.

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 6-1-4. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Flange back adjustment chart
   Make the chart shown in Fig. 6-1-5 using A0 size (1189mm × 841mm) black and white vellum paper.

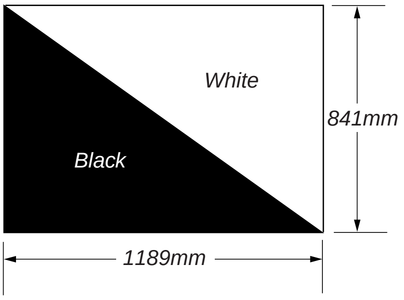

White
Black
841mm
1189mm

Fig. 6-1-5.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

4. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate AF laser adjustment.
If it is not available, prepare the flash adjustment box as given below;

1) Provide woody board A, B and C of 15 mm thickness.

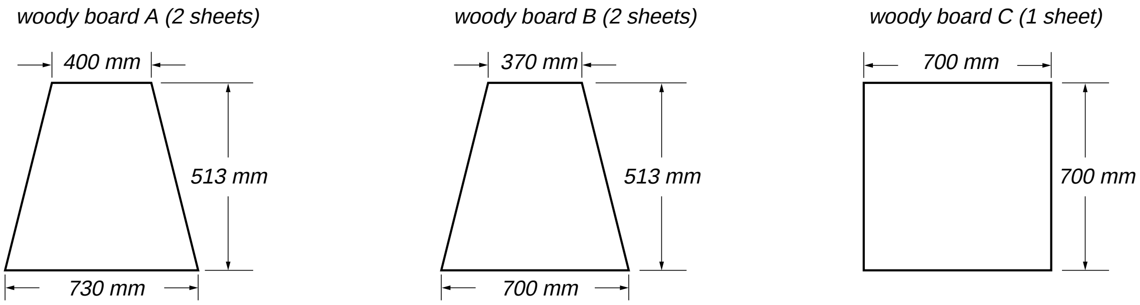

woody board A (2 sheets)
400 mm
513 mm
730 mm
woody board B (2 sheets)
370 mm
513 mm
700 mm
woody board C (1 sheet)
700 mm
700 mm

Fig. 6-1-6

2) Apply black mat paint to one side of woody board A and B.
3) Attach background paper (J-2501-130-A) to woody board C.
4) Assemble so that the black sides and the background paper side of woody board A, B and C are internal. (Fig. 6-1-7)

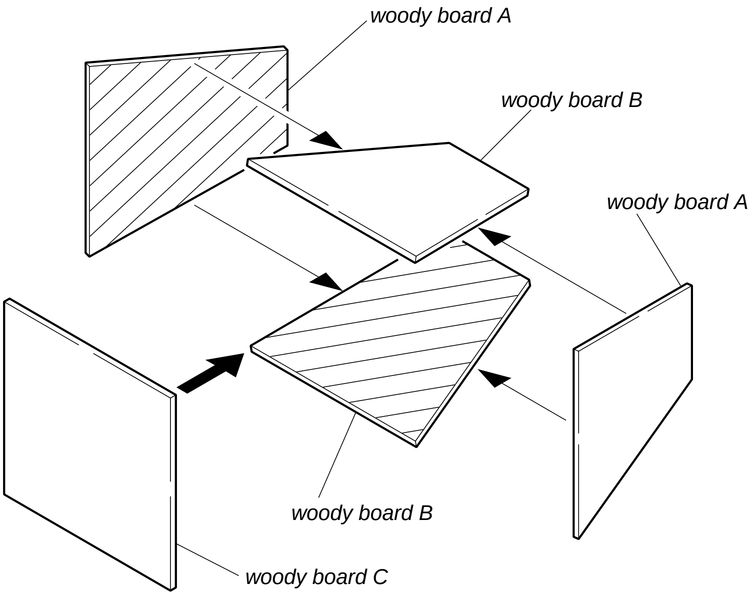

woody board A
woody board B
woody board A
woody board B
woody board C

Fig. 6-1-7

1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1E, 1F PAGE DATA

Note: When reading or writing the 1B, 1E or 1F page data, select page: 0, address: 10, and set data: 01, then select B, E or F page. The 1B, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

[Connection of the power supply during the initialization of the data.]

1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 6-1-8.
2) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.0 ± 0.1Vdc.
3) Turn off the power supply.
4) Turn on the HOLD switch of the adjusting remote commander.
5) Turn on the power supply.
6) Perform the initialization of the data.

Note: This is normal though the following message is indicated on the LCD screen.
"FOR InfoLITHIUM BATTERY ONLY"

[Initialization Procedure]

1. Initialization of A, D page data
2. Initialization of 8, C page data
3. Initialization of E, F, 1E, 1F page data
4. Initialization of B, 1B page data

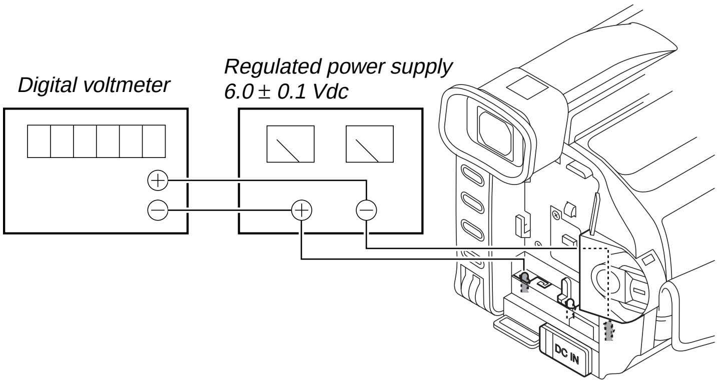


Fig. 6-1-8.

1-2-1. INITIALIZATION OF A, D PAGE DATA

Note: The data of page: 0, address: 10 must be "00".

1. Initializing the A, D Page Data

Note1: If "Initializing the A, D Page Data" is performed, all data of the A page and D page will be initialized. (It is impossible to initialize a single page.)

Note2: If the A, D page data has been initialized, the following adjustments need to be performed again.
1) Modification of A, D page data
2) Touch panel adjustment

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Note4: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

Adjusting page	A
Adjusting Address	10 to FF
Adjusting page	D
Adjusting Address	10 to 7F

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	7	03		Set the following data. 08 (NTSC), 88 (PAL)
4	7	00	28	Set the data.
5	7	01	28	Set the data, and press PAUSE button.
6	7	02		Check that the data changes to "01"
7	2	00	29	Set the data.
8	2	01	29	Set the data, and press PAUSE button.
9				Perform "Modification of A, D Page Data".

2. Modification of A, D Page Data

If the A, D page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

Processing after Completing Modification of A, D Page data

Order	Page	Address	Data	Procedure
1	2	00	29	Set the data.
2	2	01	29	Set the data, and press PAUSE button.

Note: If the following symptoms occur after completing of the "Modification of A, D page data", check that the data of the "Fixed data-2" addresses of A and D page are same as those of the same model of the same destination.
1) The self-diagnosis code "E:20:00" on the LCD screen is displayed.
2) The power is shut off so that unit cannot operate.

3. A Page Table

Note1: The data of page: 0, address: 10 must be “00”.
Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, D Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of A, D Page Data”).

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			
10 to 8F			Fixed data-1
90	CF	DB	Touch panel adj.
91	21	25	
92	D2	DA	
93	19	23	
94 to FF			Fixed data-1

Table. 6-1-2.

4. D Page Table

Note1: The data of page: 0, address: 10 must be “00”.
Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the A, D Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of A, D Page Data”).

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11		Fixed data-1
12		Fixed data-2
13		
14 to 15		Fixed data-1
16		Fixed data-2
17 to 21		Fixed data-1
22		Fixed data-2 (Modified data. Copy the data built in the same model.)
23		
24		
25		
26		
27 to 29		Fixed data-1
2A		Fixed data-2
2B		
2C to 36		Fixed data-1
37		Fixed data-2
38 to 39		Fixed data-1
3A		Fixed data-2
3B to 50		Fixed data-1
51		Fixed data-2 (Modified data. Copy the data built in the same model.)
52		
53		
54		
55 to 56		
57		Fixed data-2
58		Fixed data-1
59		Fixed data-2 (Modified data. Copy the data built in the same model.)
5A		
5B		
5C		
5D		
5E		
5F		
60 to 7F		Fixed data-1

Table. 6-1-3.

1-2-2. INITIALIZATION OF 8, C PAGE DATA

Note: The data of page: 0, address: 10 must be “00”.

1. Initializing the 8, C Page Data

Note1: If “Initializing the 8, C Page Data” is performed, all data of the 8 page and C page will be initialized. (It is impossible to initialize a single page.)

Note2: If the 8, C page data has been initialized, following adjustments need to be performed again.

1) Modification of 8, C page data
2) Viewfinder system adjustments
3) LCD system adjustments
4) Servo and RF system adjustments
5) Serial No. input
6) Video system adjustments

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	8
Adjusting Address	00 to A3
Adjusting page	C
Adjusting Address	10 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	3	81		Check that the data is “00”.
4	3	80	0C	Set the data, and press PAUSE button.
5	3	80		Check that the data changes to “1C”.
6				Perform “Modification of 8, C Page Data”.

2. Modification of 8, C Page Data

If the 8, C page data has been initialized, change the data of the “Fixed data-2” address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of 8, C Page data

Order	Page	Address	Data	Procedure
1	2	00	29	Set the data.
2	2	01	29	Set the data, and press PAUSE button.

3. 8 Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C Page Data”).

Address	Initial value	Remark
00 to 21		Fixed data-1
22		Fixed data-2
23 to 2E		Fixed data-1
2F		Fixed data-2
30 to 3A		Fixed data-1
3B		Fixed data-2
3C to 49		Fixed data-1
4A		Fixed data-2
4B to 51		Fixed data-1
52		Fixed data-2
53 to 79		Fixed data-1
7A		Fixed data-2 (Modified data. Copy the data built in the same model.)
7B		
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84 to 89		Fixed data-1
8A		Fixed data-2
8B		Fixed data-1
8C	08	Serial No. input
8D	00	
8E	46	
8F	01	
90	02	
91	00	
92	00	
93	00	
94 to A3		Fixed data-1

Table. 6-1-4.

4. C Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of 8, C Page Data”).

Address	Initial value	Remark
00 to 0F		
10	EE	Switching position adj.
11	00	
12	00	
13	00	
14 to 15		Fixed data-1
16	E0	CAP FG duty adj.
17		Fixed data-1
18	2A	AEQ adj.
19	2A	
1A		Fixed data-1
1B	32	AEQ adj.
1C	32	
1D		Fixed data-1
1E	25	AGC center level adj.a
1F	3E	PLL f_0 adj.
20	3E	
21	DC	APC adj.
22	99	LPF f_0 adj.
23 to 24		Fixed data-1
25	88	S VIDEO out Y level adj.
26	E3	S VIDEO out Cr level adj.
27	A1	S VIDEO out Cb level adj.
28	04	Chroma BPF f_0 adj.
29	20	PLL f_0 adj.
2A		Fixed data-1
2B		Fixed data-2
2C	03	APC adj.
2D to 4E		Fixed data-1
4F	65	Back light adj. (EVF)
50	CB	
51	87	VCO adj. (EVF)
52	6F	
53		Fixed data-1
54	97	RGB AMP adj. (EVF)
55 to 57		Fixed data-1
58	37	Contrast adj. (EVF)
59 to 60		Fixed data-1
61	80	VCO adj. (LCD)
62	70	
63	80	V COM adj. (LCD)
64	2B	RGB AMP adj. (LCD)
65		Fixed data-1
66	B5	COM AMP adj. (LCD)
67	80	White balance adj. (LCD)
68	80	
69	3E	Contrast adj. (LCD)
6A to 71		Fixed data-1
72		Fixed data-2
73 to 75		Fixed data-1
76		Fixed data-2
77 to 79		Fixed data-1
7A		Fixed data-2
7B to 80		Fixed data-1
81		Fixed data-2
82		
83 to 84		Fixed data-1
85		Fixed data-2
86 to 87		Fixed data-1
88		Fixed data-2 (Modified data. Copy the data built in the same model.)
89		
8A		
8B		Fixed data-1
8C		Fixed data-2
8D to A9		Fixed data-1
AA		Fixed data-2
AB		Fixed data-1
AC		Fixed data-2
AD to BF		Fixed data-1
C0		Fixed data-2
C1 to CC		Fixed data-1
CD		Fixed data-2
CE to E2		Fixed data-1
E2		Fixed data-2
E3		
E4 to F3		Fixed data-1
F4	00	Emergency memory address
F5	00	
F6	00	
F7	00	
F8	00	
F9	00	
FA	00	
FB	00	
FC	00	
FD	00	
FE	00	
FF	00	

Table. 6-1-5.

1-2-3. INITIALIZATION OF E, F, 1E, 1F PAGE DATA

Note: When reading or writing the E, F page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1E or 1F page data, select page: 0, address: 10, and set data: 01, then select E or F page. The 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

1. Initializing the E, F, 1E, 1FA Page Data

Note1: If "Initializing the E, F, 1E, 1F Page Data" is performed, all data of the E page, F page, 1E page and 1F page will be initialized. (It is impossible to initialize a single page.)

Note2: If the E, F, 1E, 1F page data has been initialized, following adjustments need to be performed again.

1) Modification of E, F, 1E, 1F page data
2) 66MHz/54MHz origin osc. adjustment
3) Camera system adjustments

Note3: The power supply voltage must be 6.0 ± 0.1Vdc.

Note4: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	1E
Adjusting Address	00 to C3
Adjusting page	1F
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	6	01		Set the following data, and press PAUSE button. 2D (NTSC), 2F (PAL)
4	6	03	01	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01".
6				Perform "Modification of E, F, 1E, 1F Page Data".

2. Modification of E, F, 1E, 1F Page Data

If the E, F, 1E, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the E, F page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1E, 1F page data, select page: 0, address: 10, and set data: 01.
   After completing the modification of 1E, 1F page data, reset the data of this address to "00".
4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of E, F, 1E, 1F Page data

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.
4				Perform "66MHz/54MHz Origin Osc. Adjustment" of the camera system adjustment.

3. E Page Table

Note1: The data of page: 0, address: 10 must be “00”.
Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”).

Address	Remark
00 to 10	Fixed data-1
11	Fixed data-2 (Modified data. Copy the data built in the same model.)
12	
13	
14	
15 to 19	Fixed data-1
1A	Fixed data-2
1B to 1C	Fixed data-1
1D	Fixed data-2 (Modified data. Copy the data built in the same model.)
1E	
1F	
20	Fixed data-1
21	Fixed data-2 (Modified data. Copy the data built in the same model.)
22	
23	
24 to 2A	Fixed data-1
2B	Fixed data-2
2C	
2D to 33	Fixed data-1
34	Fixed data-2
35 to 38	Fixed data-1
39	Fixed data-2
3A	
3B to 3C	Fixed data-1
3D	Fixed data-2
3E	
3F to 57	Fixed data-1
58	Fixed data-2
59	
5A to 5D	Fixed data-1
5E	Fixed data-2
5F to 60	Fixed data-1
61	Fixed data-2 (Modified data. Copy the data built in the same model.)
62	
63	
64	
65	
66	
67 to 68	Fixed data-1
69	Fixed data-2
6A	Fixed data-1
6B	Fixed data-2
6C to 6F	Fixed data-1
6F	Fixed data-2
70	
71	Fixed data-1
72	Fixed data-2
73	Fixed data-1
74	Fixed data-2
75	Fixed data-1
76	Fixed data-2
77 to 78	Fixed data-1
79	Fixed data-2 (Modified data. Copy the data built in the same model.)
7A	
7B	
7C	
7D to 94	Fixed data-1
95	Fixed data-2
96	
97 to B2	Fixed data-1
B3	Fixed data-2
B4 to C6	Fixed data-1
C7	Fixed data-2 (Modified data. Copy the data built in the same model.)
C8	
C9	
CA to CC	Fixed data-1
CD	Fixed data-2
CE	
CF to D7	Fixed data-1
D8	Fixed data-2
D9 to E2	Fixed data-1
E3	Fixed data-2
E4	
E5 to FE	Fixed data-1
FF	Fixed data-2

Table. 6-1-6.

4. F Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”).

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			
10	40	40	66MHz/54MHz origin osc. adj.
11 to 12			Fixed data-1
13	80	80	HALL adj.
14	90	90	
15	18	18	
16	75	75	
17	4A	4A	
18	89	89	
19	80	80	MAX GAIN adj.
1A	80	80	LV standard data input
1B	7A	7A	
1C	80	80	F No. & ND light quantity standard data input
1D	80	80	
1E	80	80	
1F	80	80	
20	80	80	
21	80	80	
22	80	80	
23	80	80	
24 to 29			Fixed data-1
2A	14	14	AWB standard data input
2B	17	17	
2C	04	04	
2D	79	79	
2E to 37			Fixed data-1
38	00	01	Color reproduction adj.
39	EF	E8	
3A	1E	1B	
3B	2F	24	
3C			Fixed data-2
3D			
3E			
3F			
40	0A	0A	Auto white balance adj.
41	19	19	
42	07	07	
43	DD	DD	
44 to 5F			Fixed data-1
60	11	11	Flange back adj.
61	EB	EB	
62	53	53	
63	0A	0A	
64	1E	1E	
65	AC	AC	
66	00	00	
67	00	00	
68	00	00	
69	00	00	Flange back adj.
6A	86	86	
6B	19	19	
6C	19	19	
6D	38	38	
6E	00	00	
6F	00	00	
70	00	00	
71	80	80	MR adj.
72	80	80	
73	80	80	
74	80	80	
75	40	40	
76	C0	C0	
77	40	40	
78	C0	C0	
79	40	40	
7A	C0	C0	
7B	40	40	
7C	C0	C0	
7D	20	20	AF laser output adj.
7E	00	00	
7F	00	00	
80	00	00	
81	00	00	
82	00	00	
83	00	00	
84	80	80	PSD sensor gain adj.
85	80	80	
86	50	50	Angular velocity sensor sensitivity adj.
87	50	50	
88 to 8F			Fixed data-1
90	00	00	Mechanical shutter adj
91	00	00	
92	00	00	
93	00	00	
94	00	00	
95	00	00	
96	00	00	
97	00	00	
98	00	00	
99	00	00	
9A	00	00	
9B	00	00	
9C	00	00	
9D	00	00	
9E	00	00	
9F	00	00	
A0	00	00	
A1	00	00	
A2	00	00	
A3	00	00	
A4	00	00	
A5	00	00	

F page

Address	Initial value		Remark
	NTSC	PAL	
A6 to B3			Fixed data-1
B4			Fixed data-2
B5			Fixed data-1
B6			Fixed data-2
B7			
B8 to C4			Fixed data-1
C5			Fixed data-2
C6 to FF			Fixed data-1

Table. 6-1-7.

5. 1E Page Table

Note1: When reading or writing the 1E page data, select page: 0, address: 10, and set data: 01, then select E page. The 1E page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data").

Address	Remark
00	Fixed data-2
01 to 07	Fixed data-1
08	Fixed data-2
09	
0A to 14	Fixed data-1
15	Fixed data-2
16 to 1F	Fixed data-1
20	Fixed data-2
21	Fixed data-1
22	Fixed data-2
23	(Modified data. Copy the data
24	built in the same model.)
25	
26	
27 to 2B	Fixed data-1
2C	Fixed data-2
2D	(Modified data. Copy the data
2E	built in the same model.)
2F to 33	Fixed data-1
34	Fixed data-2
35 to 48	Fixed data-1
49	Fixed data-2
4A to 4B	Fixed data-1
4C	Fixed data-2
4D	
4E	Fixed data-1
4F	Fixed data-2
50 to 53	Fixed data-1
54	Fixed data-2
55	
56 to 5B	Fixed data-1
5C	Fixed data-2
5D	Fixed data-1
5E	Fixed data-2
5F	
60 to 63	Fixed data-1
64	Fixed data-2
65	
66 to 69	Fixed data-1
6A	Fixed data-2
6B	(Modified data. Copy the data
6C	built in the same model.)
6D	
6E	
6F to 71	Fixed data-1

1E page

Address	Remark
72	Fixed data-2
73	
74	Fixed data-1
75	Fixed data-2 (Modified data. Copy the data built in the same model.)
76	
77	
78	
79	
7A to B0	Fixed data-1
B1	Fixed data-2 (Modified data. Copy the data built in the same model.)
B2	
B3	
B4	Fixed data-1
B5	Fixed data-2
B6 to C0	Fixed data-1
C1	Fixed data-2 (Modified data. Copy the data built in the same model.)
C2	
C3	

Table. 6-1-8

6. 1F Page Table

Note1: When reading or writing the 1F page data, select page: 0, address: 10, and set data: 01, then select F page. The 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data").

Address	Remark
00 to 0A	Fixed data-1
0B	Fixed data-2 (Modified data. Copy the data built in the same model.)
0C	
0D	
0E	
0F	
10	
11	
12 to 16	Fixed data-1
17	Fixed data-2
18 to 61	Fixed data-1
62	Fixed data-2
63	
64 to 67	Fixed data-1
68	Fixed data-2
69 to 6C	Fixed data-1
6D	Fixed data-2
6E to AB	Fixed data-1
AC	Fixed data-2
AD	
AE to B8	Fixed data-1
B9	Fixed data-2
BA to BB	Fixed data-1
BC	Fixed data-2
BD	
BE to C5	Fixed data-1
C6	Fixed data-2
C7 to CF	Fixed data-1
D0	Fixed data-2
D1 to D9	Fixed data-1
DA	Fixed data-2
DB	
DC	Fixed data-1
DD	Fixed data-2
DE	
DF to E7	Fixed data-1
E8	Fixed data-2
E9	
EA to EC	Fixed data-1
ED	Fixed data-2
EE	
EF to F4	Fixed data-1
F5	Fixed data-2
F6 to FF	Fixed data-1

Table. 6-1-9.

1-2-4. INITIALIZATION OF B, 1B PAGE DATA

Note: When reading or writing the B page data, select page: 0, address: 10, and set data: 00.
When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to “00”.

1. Initializing the B, 1B Page Data

Note1: If “Initializing the B, 1B Page Data” is performed, all data of the B page and 1B page will be initialized. (It is impossible to initialize a single page.)

Note2: The power supply voltage must be 6.0 ± 0.1Vdc.

Adjusting page	B
Adjusting Address	00 to FF
Adjusting page	1B
Adjusting Address	00 to FF

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	5	0E	00	Set the data, and press PAUSE button
4	5	01	F3	Set the data, and press PAUSE button.
5	5	00	01	Set the data, and press PAUSE button.
6	5	0E		Check that the data changes to “01”.
7	5	0E	00	Set the data, and press PAUSE button
8	5	03	20	Set the data, and press PAUSE button.
9	5	01	FA	Set the data, and press PAUSE button.
10	5	00	01	Set the data, and press PAUSE button.
11	5	0E		Check that the data changes to “01”.
12				Turn off the power and turn on again

2. Modification of B, 1B Page Data

When changing the B, 1B page data, change the data by the following procedure.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) When changing the B page data, select page: 0, address: 10, and set data: 00.
3) When changing the 1B page data, select page: 0, address: 10, and set data: 01.
After completing the modification of 1B page data, reset the data of this address to “00”.
4) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

Processing after Completing Modification of B, 1B Page data:

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

3. B Page Table

Note1: The data of page: 0, address: 10 must be “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the B, 1B Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of B, 1B Page Data”).

Address	Remark
00 to FF	Fixed data-1

Table. 6-1-10.

4. 1B Page Table

Note1: When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to “00”.

Note2: Fixed data-1: Initialized data. (Refer to “1. Initializing the B, 1B Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of B, 1B Page Data”).

Address	Remark
00 to FF	Fixed data-1

Table. 6-1-11.

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments (except for "66MHz/54MHz Origin Oscillation Adjustment"), check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.
And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

1. 66MHz/54MHz Origin Oscillation Adjustment (VC-318 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ⑥ of IC1202 (R1209) or Pin ㉓ of IC3404 on DB-016 board
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	10
Specified Value	Pin ⑥ of IC1202 : f=33000000 ± 165Hz (NTSC) f=27000000 ± 135Hz (PAL)

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	10		Change the data and set the frequency (f) to the specified value.
3	F	10		Press PAUSE button.
4	0	01	00	Set the data.

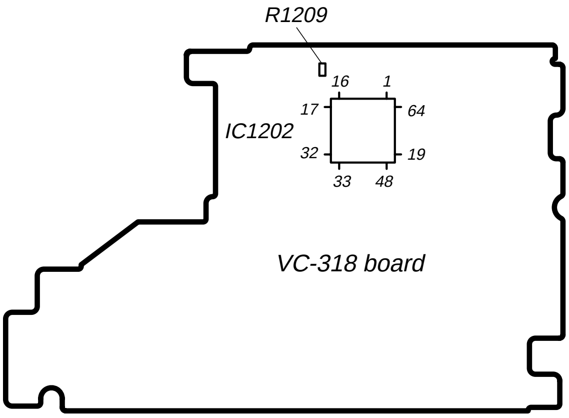


Fig. 6-1-9.

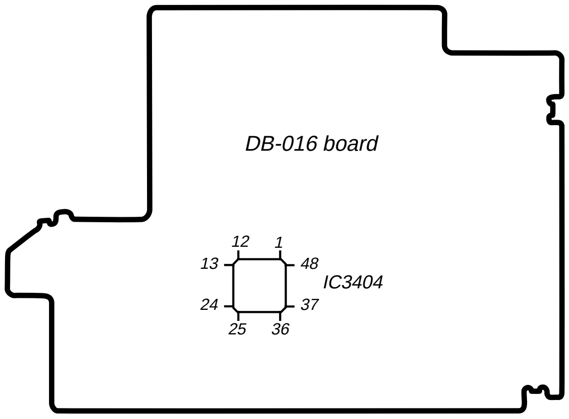


Fig. 6-1-10.

2. HALL Adjustment

RadarW

For detecting the position of the lens iris and ND filter, adjust AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1 (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	13 to 18
Specified Value 1	14 to 18
Specified Value 2	84 to 88
Specified Value 3	84 to 88
Specified Value 4	14 to 18

Note1: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX

IRIS display data (second XX)

ND display data (first XX)

Note2: The data of page: 0, address: 10 must be “00”.

Note3: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

POWER .... CAMERA

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	94	16	Set the data.
3	6	95	86	Set the data.
4	6	01	6D	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to “01”. (Note3)
6	6	01	00	Set the data, and press PAUSE button.

Note4: The adjustment data will be automatically input to page: F, address: 13 to 18.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	Set the data.
2	6	01	01	Set the data, and press PAUSE button.
3	1			Check that the IRIS display data (Note1) satisfies the specified value 1.
4	6	01	03	Set the data, and press PAUSE button.
5	1			Check that the IRIS display data (Note1) satisfies the specified value.2.
6	6	01	69	Set the data, and press PAUSE button.
7	1			Check that the ND display data (Note1) satisfies the specified value 3.
8	6	01	6B	Set the data, and press PAUSE button.
9	1			Check that the ND display data (Note1) satisfies the specified value.4.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	94	00	Set the data.
3	6	95	00	Set the data.
4	0	03	00	Set the data.
5	0	01	00	Set the data.

3. MR Adjustment RadarW

The MR (Magnet resistor) adjustment of the inner focus lens is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Not required
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	70 to 7C
Specified Value1	40 to C0
Specified Value2	03 to 78
Specified Value3	88 to F8

Note1: Make the lens horizontal and perform this adjustment.
Note2: Perform this adjustment before “Flange Back Adjustment”.
Note3: The data of page: 0, address: 10 must be “00”.
Note4: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	BD	Set the data, and press PAUSE button.
3	6	02		Check that the data changes to “01”.(Note5)
4	F	71		Check that the data satisfies the specified value 1.
5	F	72		Check that the data satisfies the specified value 1.
6	F	73		Check that the data satisfies the specified value 1.
7	F	74		Check that the data satisfies the specified value 1.
8	F	75		Check that the data satisfies the specified value 2.
9	F	76		Check that the data satisfies the specified value 3.
10	F	77		Check that the data satisfies the specified value 2.
11	F	78		Check that the data satisfies the specified value 3.
12	F	79		Check that the data satisfies the specified value 2.
13	F	7A		Check that the data satisfies the specified value 3.
14	F	7B		Check that the data satisfies the specified value 2.
15	F	7C		Check that the data satisfies the specified value 3.

Note5: The adjustment data will be automatically input to page: F, address: 70 to 7C.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again

4. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	60 to 70
Specified Value	Data of page: F, address: 6F is “00” to “0E”.

Note1: Dark Siemens star chart.

Note2: This adjustment should be carried out upon completion of the following adjustments.
“HALL Adjustment”, “MR Adjustment”

Note3: Make the lens horizontal and perform this adjustment.

Note4: The data of page: 0, address: 10 must be “00”.

Note5: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

POWER .... CAMERA

Preparations:

1) The minipattern box is installed as shown in the following figure.
   Note: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm. (Remove the lens hood.)
3) Make the height of the minipattern box and the camcorder equal.
4) Check that the output voltage of the regulated power supply is the specified voltage.
5) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

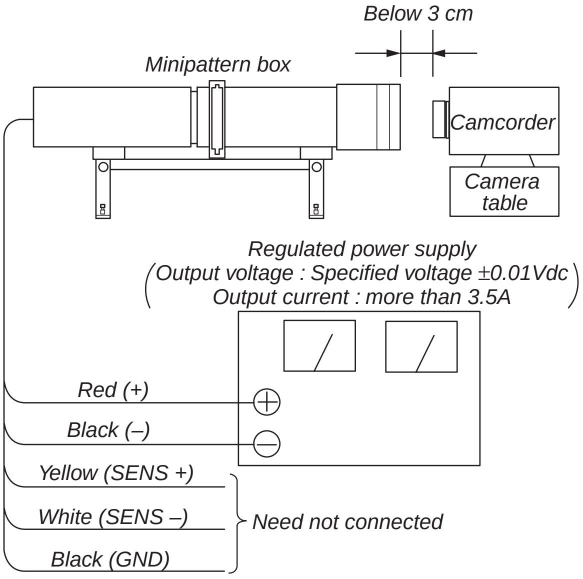


Fig. 6-1-11.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button. (Note3)
3	6	01	27	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note6)
5	F	6F		Check the data is “00” to “0E”.

Note6: The adjustment data will be automatically input to page: F, address: 60 to 70.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform “Flange Back Check”.

5. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

5-1. Flange Back Adjustment (1) RadarW

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 350 ± 50 lux)
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	60 to 70
Specified Value	Data of page: F, address: 6F is “00” to “0E”.

Note1: This adjustment should be carried out upon completion of the following adjustments.
“HALL Adjustment”, “MR Adjustment”
Note2: Make the lens horizontal and perform this adjustment.
Note3: The data of page: 0, address: 10 must be “00”.
Note4: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER .... CAMERA

Preparations:

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button. (Note2)
3	6	01	15	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note5)
5	F	6F		Check the data is “00” to “0E”.

Note5: The adjustment data will be automatically input to page: F, address: 60 to 70.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again
4				Perform “Flange Back Adjustment (2)”

5-2. Flange Back Adjustment (2) RadarW

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	60 to 70

Note1: Make the lens horizontal and perform this adjustment.
Note2: The data of page: 0, address: 10 must be “00”.
Note3: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER .... CAMERA

Preparations:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500m away should not be in the screen.)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button. (Note2)
3				Place a ND filter on the lens so that the optimum image is obtain.
4	6	01	29	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to “01”. (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 60 to 70.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again
4				Perform “Flange Back Check”

6. Flange Back Check

Subject	Siemens star (2.0m from the front of the lens) (Luminance : 350 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Note1: The data of page: 0, address: 10 must be "00".

Switch setting:

POWER .... CAMERA

Note2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.

1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
Odd: Focused
Even: Unfocused

Checking method:

1) Select page: 6, address: 40, and set data: 01.
2) Select page: 6, address: 41, and set data: 01.
3) Place the Siemens star 2.0m from the front of the lens.
4) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note2).
8) Select page: 6, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustments:

1) Select page: 6, address: 21, and set data: 00.
2) Select page: 6, address: 40, and set data: 00.
3) Select page: 6, address: 41, and set data: 00.
4) Select page: 0, address: 03, and set data: 00.

7. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.0m from the front of the lens)
Measurement Point	Video terminal of AUDIO/VIDEO jack
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Note1: The following adjustments should be carried out upon completion of "Flange Back Adjustment".

Note2: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) FOCUS .... MANUAL

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

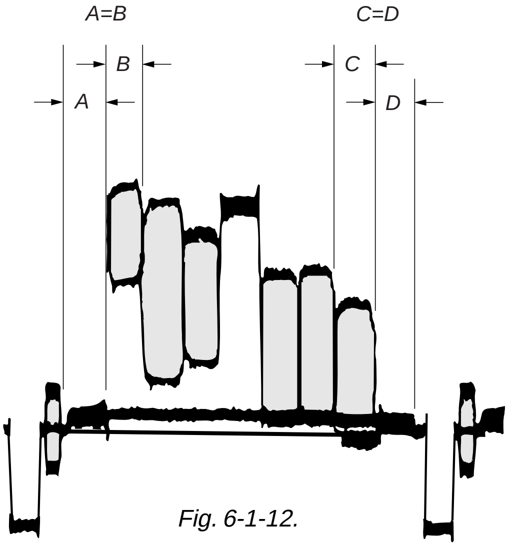


Fig. 6-1-12.

2. Vertical period

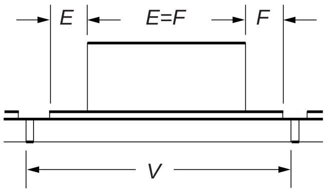


Fig. 6-1-13.

Check on the monitor TV (Underscanned mode)

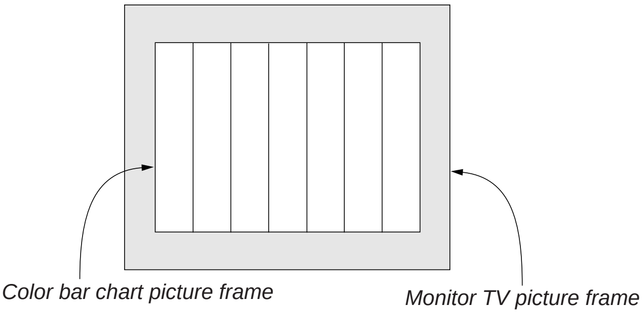


Fig. 6-1-14.

8. Auto White Balance Standard Data Input RadarW

Adjust the white balance reference at 3200K.

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	2A to 2D

Note1: After the power is turned on, this adjustment can be done only once.
Note2: The data of page: 0, address: 10 must be “00”.
Note3: Check that the data of page: 6, address: 02 is “00”. If not, turn off the power and turn on again.

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	11	Set the data, and press PAUSE button.
3	6	01	0B	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 2A to 2D.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.

9. MAX GAIN Adjustment RadarW

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	19

Note1: This adjustment should be carried out upon completion of “Auto White Balance Standard Data Input”.
Note2: The data of page: 0, address: 10 must be “00”.
Note3: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.
Note4: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	96		Set the following data. 32 (NTSC), 19 (PAL)
3	6	97	00	Set the data.
4	6	01	6F	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to “01”. (Note5)

Note5: The adjustment data will be automatically input to page: F, address: 19.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	96	00	Set the data.
3	6	97	00	Set the data.
4	0	01	00	Set the data.

10. F No. & ND Light Quantity Standard Data Input RadarW

Compensate the unevenness of the light quantity of the iris meter and ND filter.

Subject	Clear chart (All white) (Note1) (Approx. 33cm from the front of the lens)
Adjustment Page	F
Adjustment Address	1C to 23

Note1: Shoot the clear chart with the zoom WIDE end. And adjust the camera direction so that the whole screen is white.
Note2: Perform “Mechanical Shutter Adjustment” after this adjustment.
Note3: The data of page: 0, address: 10 must be “00”.
Note4: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER .... CAMERA
2) ZOOM .... WIDE end
3) DIGITAL ZOOM (Menu display) .... OFF
4) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	30	01	Set the data.
3	6	01	BB	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note5)

Note5: The adjustment data will be automatically input to page: F, address: 1C to 23.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	30	00	Set the data.
3	0	01	00	Set the data.

11. LV Standard Data Input RadarW

Adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Display data of page 1 (Note4)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	1A, 1B
Specified Value	0FE0 to 1020

Note1: This adjustment should be carried out upon completion of “Auto White Balance Standard Data Input”.
Note2: The data of page: 0, address: 10 must be “00”.
Note3: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.
Note4: Displayed data of page 1 of the adjustment remote commander.
1 : XX : XX
└── Display data

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	30	01	Set the data.
3	6	01	0D	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to “01”. (Note5)
5	6	04	1E	Set the data.
6	1			Check that the display data (Note4) satisfies the specified value. (Note6)

Note5: The adjustment data will be automatically input to page: F, address: 1A, 1B.
Note6: If it isn’t satisfied, repeat the adjustment again.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	04	00	Set the data.
3	6	30	00	Set the data.
4	0	01	00	Set the data.

12. Auto White Balance Adjustment RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Adjustment Page	F
Adjustment Address	40 to 43

Note1: After the power is turned on, this adjustment can be done only once.
Note2: The data of page: 0, address: 10 must be “00”.
Note3: Check that the data of page: 6, address: 02 is “00”. If not, turn off the power and turn on again.

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter for color temperature correction on the lens.
2	0	01	01	Set the data.
3	6	01	83	Set the data, and press PAUSE button.
4	6	01	81	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to “01”. (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 40 to 43.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Remove the C14 filter.

13. Color Reproduction Adjustment **RadarW**

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of AUDIO/VIDEO jack (75Ω terminated.)
Measuring Instrument	Vectorscope, oscilloscope
Adjustment Page	F
Adjustment Address	38 to 3B
Specified Value	All color luminance points should settle within each color reproduction frame.

Note1: After the power is turned on, this adjustment can be done only once.
Note2: The data of page: 0, address: 10 must be "00".
Note3: Check that the data of page: 6, address: 02 is "00". If not, turn off the power and turn on again.
Note4: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Check that the picture frame is set to the specified position. (Refer to "7. Picture Frame Setting".)
2	0	01	01	Set the data.
3	6	01	3D	Set the data, and press PAUSE button.
4	6	9D		Change the data and set the Y signal level (A) to 90IRE. (Fig. 6-1-15) Note: 90IRE = 642.6mV (NTSC) 90IRE = 630mV (PAL)
5	6	01	61	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note5)
7				Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame. (Fig. 6-1-16)
8				Check that all color luminance points settle within each color reproduction frame. (Fig. 6-1-16)

Note5: The adjustment data will be automatically input to page: F, address: 38 to 3B.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	9D	00	Set the data.
3	0	01	00	Set the data.

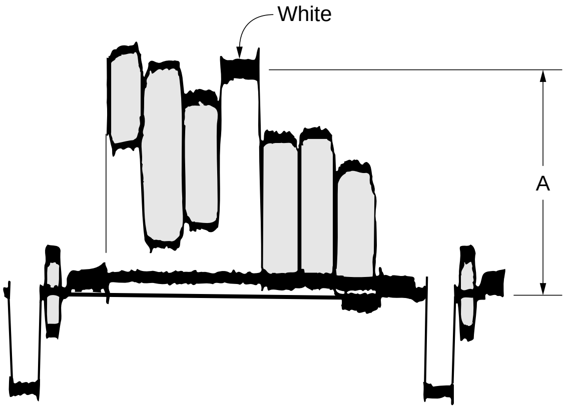
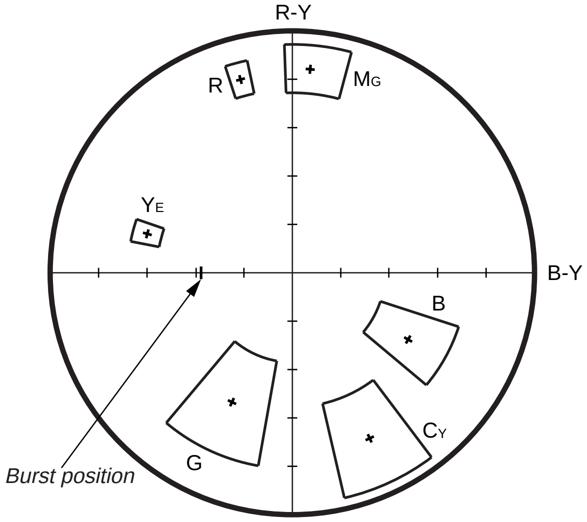


Fig. 6-1-15.

NTSC model



PAL model

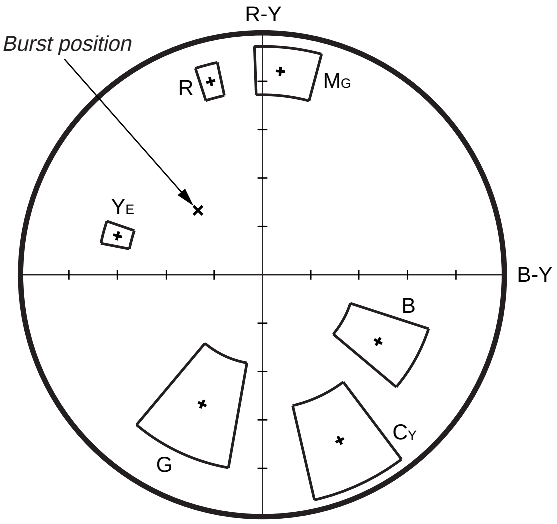


Fig. 6-1-16.

14. White Balance Check RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video terminal of AUDIO/VIDEO jack (75Ω terminated.)
Measuring Instrument	Vectorscope
Specified Value	Fig. 6-1-17. A to B

Note1: The data of page: 0, address: 10 must be “00”.

Switch setting:

1) POWER .... CAMERA
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF

Checking method:

Order	Page	Address	Data	Procedure
				Indoor white balance check
1				Check that the lens is not covered with either filter.
2	6	01	0F	Set the data, and press PAUSE button.
3				Check that the center of the white luminance point is within the circle shown Fig. 6-1-17. A.
4	6	01	00	Set the data, and press PAUSE button.
				Outdoor white balance check
5				Place the C14 filter on the lens.
6	6	01	3F	Set the data, and press PAUSE button.
7				Check that the center of the white luminance point is within the circle shown Fig. 6-1-17. B.
8				Remove the C14 filter.
9	6	01	00	Set the data, and press PAUSE button.
				LV data check
10				Place the ND filter 1.5 (1.0+0.1+0.4) on the lens.
11	0	03	06	Set the data.
12	1			Check that the display data (Note2) satisfies the specified value. Specified value: 8000 to 8BC0

Note2: Displayed data of the adjustment remote commander.
1 : XX : XX
└── Display data

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	03	00	Set the data.
3				Remove the ND filter 1.5.

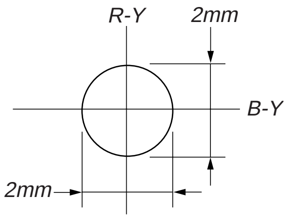


Fig. 6-1-17 (A).

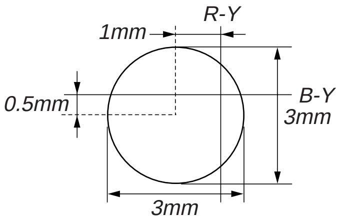


Fig. 6-1-17 (B).

15. PSD Sensor Gain Adjustment

Adjust the gain of the PSD sensor for the steady shot operation. Perform this adjustment only when replacing the lens block. When the microprocessor, circuit etc. is damaged, don't perform this adjustment but check the operations only.

Note: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

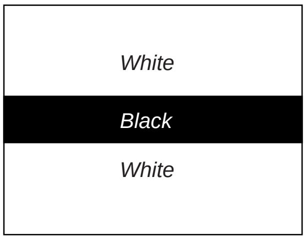
1) POWER .... CAMERA
2) ZOOM .... TELE end
3) DIGITAL ZOOM (Menu display) .... OFF
4) STEADY SHOT (Menu display) .... OFF

15-1. PSD Sensor Gain Adjustment (1)

Subject	Pattern A (1.5m from the front of the lens)
Measurement Point	Video terminal of AUDIO/VIDEO jack
Measuring Instrument	Oscilloscope (V period)
Adjustment Page	F
Adjustment Address	84

Note: The data of page: 0, address: 10 must be "00".

Pattern A



A4 size (297mm × 210mm)

Fig. 6-1-18.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 84, set data: 80, and press the pause button.
3) Select page: 6, address: 01, set data: 8F, and press the pause button.
4) Shoot the pattern A with the zoom TELE end.
5) Adjust the focus.
6) Measure the vertical position SV1 (msec) of the falling edge of the waveform. (Oscilloscope is V period)
7) Select page: 6, address: 01, set data: 91, and press the pause button.
8) Measure the vertical position SV2 (msec) of the falling edge of the waveform. (Oscilloscope is V period)
9) Obtain D_{84}' using the following equation (decimal calculation).
   NTSC model:
   $D_{84}' = 128 \times (2.751/(SV2-SV1))$
   $= 352.1/(SV2-SV1)$
   PAL model:
   $D_{84}' = 128 \times (3.298/(SV2-SV1))$
   $= 422.1/(SV2-SV1)$
10) Convert D_{84}' to hexadecimal notation, and obtain D_{84}. (Round off to one decimal place)
    (Refer to Table 6-4-1. "Hexadecimal-Decimal conversion table" of "6-4. Service Mode".)
11) Select page: F, address: 84, set data: D_{84}, and press the pause button.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 0, address: 01, and set data: 00.
3) Perform "PSD Sensor Gain Adjustment (2)".

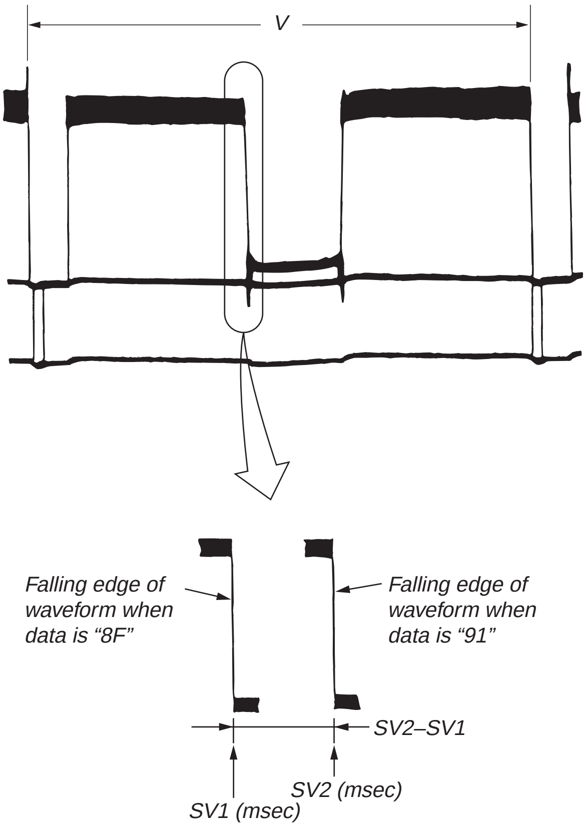
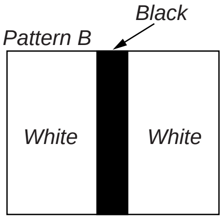

V
Falling edge of waveform when data is "8F"
Falling edge of waveform when data is "91"
SV2–SV1
SV2 (msec)
SV1 (msec)

Fig. 6-1-19.

15-2. PSD Sensor Gain Adjustment (2)

Subject	Pattern B (1.5m from the front of the lens)
Measurement Point	Video terminal of AUDIO/VIDEO jack
Measuring Instrument	Oscilloscope (H period)
Adjustment Page	F
Adjustment Address	85

Note: The data of page: 0, address: 10 must be “00”.



A4 size (297mm × 210mm)

Fig. 6-1-20.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 85, set data: 80, and press the pause button of the adjustment remote commander.
3) Select page: 6, address: 01, set data: 8F, and press the pause button of the adjustment remote commander.
4) Shoot the pattern B with the zoom TELE end.
5) Adjust the focus.
6) Measure the horizontal position SH1 (μ sec) of the falling edge of the waveform. (Oscilloscope is H period)
7) Select page: 6, address: 01, set data: 91, and press the pause button.
8) Measure the horizontal position SH2 (μ sec) of the falling edge of the waveform. (Oscilloscope is H period)
9) Obtain D_{85}’ using the following equation (decimal calculation).
   NTSC model:
   $D_{85}' = 128 \times (7.821/(SH1-SH2))$
   $= 1001/(SH1-SH2)$
   PAL model:
   $D_{85}' = 128 \times (7.876/(SH1-SH2))$
   $= 1008/(SH1-SH2)$
10) Convert D_{85}’ to hexadecimal notation, and obtain D_{85}. (Round off to one decimal place)
    (Refer to Table 6-4-1. “Hexadecimal-Decimal conversion table” of “6-4. Service Mode”.)
11) Select page: F, address: 85, set data: D_{85}, and press the pause button.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 0, address: 01, and set data: 00.
3) Perform “Angular Velocity Sensor Sensitivity Adjustment”.

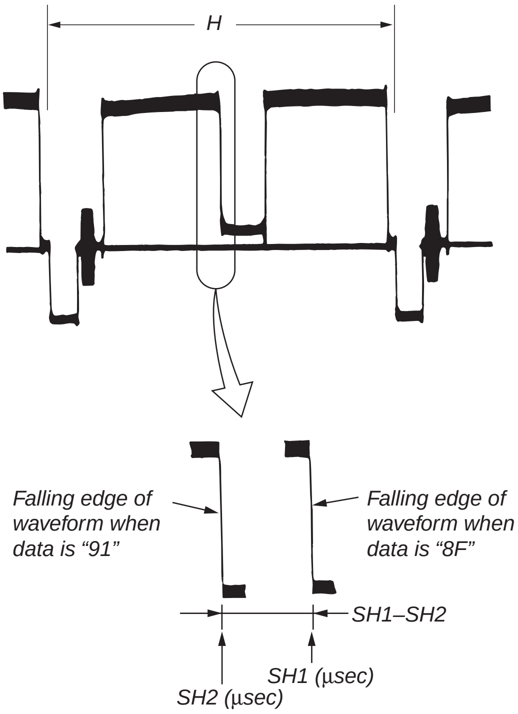

H
Falling edge of waveform when data is “91”
Falling edge of waveform when data is “8F”
SH1–SH2
SH1 (μsec)
SH2 (μsec)

Fig. 6-1-21.

16. Angular Velocity Sensor Sensitivity Adjustment

- Perform this adjustment only when replacing the angular velocity sensor. When the microprocessor, circuit etc. is damaged, don't perform this adjustment but check the operations only.
- Note down the sensitivity displayed on the angular velocity sensor of the repair parts. At this time, note down also to which board it was attached to.
  Be sure to check because if attached incorrectly, the screen will vibrate up and down or left and right during the steady shot operations.

Precautions on the Parts Replacement

There are two types of repair parts.

Type A: ENC03MA
Type B: ENC03MB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during steady shot operations. After replacing, re-adjust according to the adjusting method after replacement.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Switch setting:

1) POWER .... CAMERA
2) ZOOM .... TELE end
3) STEADY SHOT (Menu display) .... OFF

Adjustment Page	F
Adjustment Address	86, 87

Note: The sensor sensitivity of SE4001 and SE4002 of the SE-132 board is written only on the repair parts.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Read the sensor sensitivity written on SE4001 (PITCH sensor) of the SE-132 board, and name this as S_{4001}.
3) Read the sensor sensitivity written on SE4002 (YAW sensor) of the SE-132 board, and name this as S_{4002}.
4) Read the data of page: F, address: 84, and name this data as D_{84}.
5) Read the data of page: F, address: 85, and name this data as D_{85}.
6) Convert D_{84} and D_{85} into decimal digits, to obtain D_{84}' and D_{85}' (Refer to Table 6-4-1. "Hexadecimal-Decimal conversion table" of "6-4. Service Mode".)
7) Calculate D_{86}' and D_{87}' using the following equation (decimal calculation).

$$D_{86}' = (D_{84}'/128) \times (0.60 / S_{4001}) \times 88 = D_{84}' \times 0.4125 / S_{4001}$$

$$D_{87}' = (D_{85}' / 128) \times (0.60 / S_{4002}) \times 88 = D_{85}' \times 0.4125 / S_{4002}$$

8) Convert $D_{86}'$and D_{87}' into hexadecimal digits, to obtain D_{86} and D_{87}. (Round off decimal points.)
   (Refer to Table 6-4-1. "Hexadecimal-Decimal conversion table" of "6-4. Service Mode".)
9) Select page: F, address: 86, set data: D_{86}, and press the PAUSE button.
10) Select page: F, address: 87, set data: D_{87}, and press the PAUSE button.

Processing after Completing Adjustments

1) Select page: 0, address: 01, and set data: 00.
2) Check that the steady shot operations have been performed normally.

17. Mechanical Shutter Adjustment RadarW

Adjust the close time and loss time every F number of the mechanical shutter and high-speed shutter correction value to correct the luminous exposure.

Subject	Clear chart (All white) (Note1) (Approx. 33cm from the front of the lens)
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	90 to A5
Specified Value	Data of page: 6, address: A8 is "00".

Note1: Shoot the clear chart with the zoom WIDE end. And adjust the camera direction so that the whole screen is white.

Note2: This adjustment should be carried out upon completion of the following adjustments.
"HALL Adjustment", "Flange Back Adjustment", "F No. & ND Light Quantity Standard Data Input"

Note3: The data of page: 0, address: 10 must be "00".

Switch setting:

1) POWER .... CAMERA
2) ZOOM .... WIDE end
3) DIGITAL ZOOM (Menu display) .... OFF
4) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	30	01	Set the data.
3	6	9C	01	Set the data.
4				Wait for 1sec.
5	6	01	AD	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note4)
7	6	A8		Check that the data is "00".

Note4: The adjustment data will be automatically input to page: F, address: 90 to A5.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	30	00	Set the data.
3	6	9C	00	Set the data.
4	0	01	00	Set the data.

18. AF Laser Output Adjustment RadarW

Set the AF laser output to an appropriate level.

Subject	Paper which reflection rate is 18% (50cm from the front of the lens)(Note1)
Measurement Point	Adjustment remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	7D to 83
Specified Value	Data of address: 70 is “10” to “FF”. Data of address: 7E is “00” to “F0”. Data of address: 7F is “0A” to “FF”. Data of address: 82 is “33” to “4D”.

Note1: Use the background paper (J-250-130-A) and the flash adjustment box. (Refer to “1-1-3.Precaution”.)
Note2: Any light other than the laser light should not light up the subject
Note3: Remove the lens hood.
Note4: This adjustment should be carried out upon completion of the following adjustments.
“HALL Adjustment”, “Flange Back Adjustment”, “Auto White Balance Standard Data Input”, “F No. & ND Light Quantity Standard Data Input”.
Note5: The data of page: 0, address: 10 must be “00”.
Note6: Check that the data of page: 6, address: 02 is “00”. If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) POWER .... CAMERA
2) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	30	02	Set the data.
3	6	01	AF	Set the data, and press PAUSE button.
4				Check the laser light is output.
5	6	02		Check that the data is “01”. (Note7)
6	F	7D		Check that the data is “10” to “FF”.
7	F	7E		Check that the data is “00” to “F0”.
8	F	7F		Check that the data is “0A” to “FF”.
9	F	82		Check that the data is “33” to “4D”.

Note7: The adjustment data will be automatically input to page: F, address: 7D to 83.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	30	00	Set the data.
3	0	01	00	Set the data.

19. AF Laser Axis Check RadarW

Subject	Dark homogeneous subject (1m from the front of the lens)(Note1)
Measurement Point	Monitor TV screen
Measuring Instrument	
Specified Value	The total length of the hologram lines, which are seen inside the inspection frame, should be more than twice the length of one hologram line. The hologram lines can be seen at every outside of the inspection frame.

Note1: Background paper (J-2501-130-A) etc.. Perform this adjustment in the dark place.

Note2: This adjustment should be carried out upon completion of "Auto White Balance Standard Data Input".

Switch setting:

1) POWER .... MEMORY
2) FOCUS .... MANUAL
3) STEADY SHOT (Menu display) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	01	Set the data.
3	E	47	0A	Set the data.
4	0	10	00	Set the data.
5	6	23	04	Set the data.
6	6	5B	B6	Set the data.
7	6	5C	A5	Set the data.
8	6	90	A9	Set the data.
9	6	91	02	Set the data.
10	6	92	67	Set the data.
11	6	93	46	Set the data.
12	6	01	79	Set the data, and press PAUSE button.
13	6	01	78	Set the data, and press PAUSE button.
14				Check that the total length of the hologram lines (the whole or a part), that are seen inside the inspection frame, is more than twice the length of one hologram line. (Note3)
15				Check that the hologram lines can be seen at every outside of the inspection frame (the top, the bottom, the left and the right). (Note3)

Note3: When the specified value is not satisfied, rotate the screw as shown in Fig. 6-1-23 and adjust the AF laser axis. (Horizontal direction only)

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	0	10	01	Set the data.
2	E	47	00	Set the data.
3	0	10	00	Set the data.
4	6	01	00	Set the data, and press PAUSE button.
5	6	23	00	Set the data.
6	6	5B	00	Set the data.
7	6	5C	00	Set the data.
8	6	90	00	Set the data.
9	6	91	00	Set the data.
10	6	92	00	Set the data.
11	6	93	00	Set the data.
12	0	01	00	Set the data.

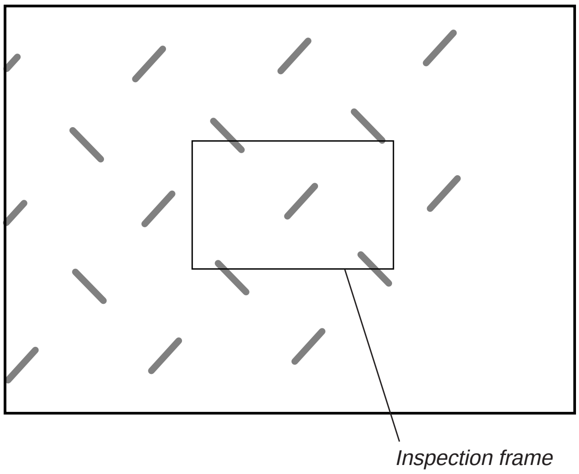


Fig. 6-1-22.

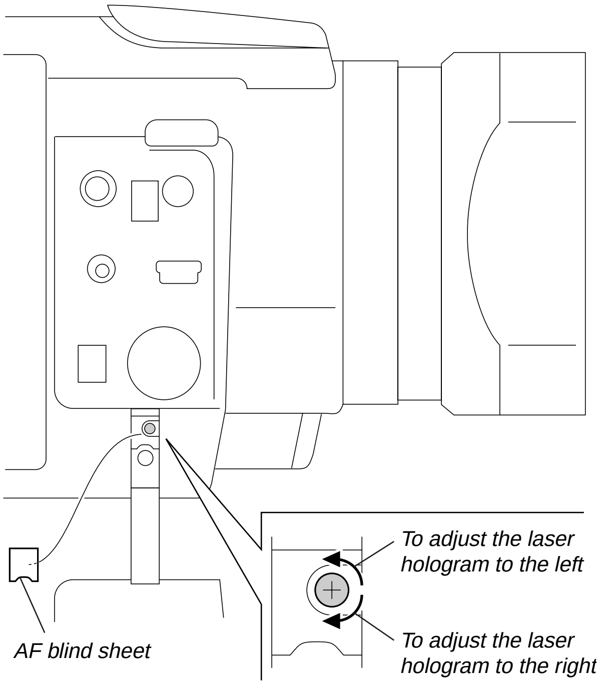

To adjust the laser hologram to the left
To adjust the laser hologram to the right
AF blind sheet

Fig. 6-1-23.

1-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

Note1: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note2: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note3: As the PANEL CLOSE switch is attached to the cabinet (R), this cabinet must be attached when performing adjustments.
If you perform the adjustments with cabinet (R) removed, set the following data.
1) Select page: 3, address: C4, and set data: 67.
2) Select page: 3, address: C5, and set data: 01.
Reset the data after completing adjustment.
1) Select page: 3, address: C4, and set data: 00.
2) Select page: 3, address: C5, and set data: 00.

Note4: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN1008 of VC-318 board.
Connect the Measuring Instruments via the CPC-8 jig (J-6082-388-A).
The following table shows the Pin No. and signal name of CN1008.

Pin No.	Signal Name	Pin No.	Signal Name
1	EVF VB	2	D 2.8V
3	EVF LED DA	4	EVF VG
5	EVF VCO	6	EVF VR
7	MD2	8	XCS MC FLASH
9	XINIT	10	XCS ST IMAGE IC
11	DRUM ON	12	FRRP
13	REC CRRT1	14	REC CRRT0
15	REG GND	16	HI XRESET
17	SWP	18	RF IN
19	GND	20	RF MON

Table. 6-1-12.

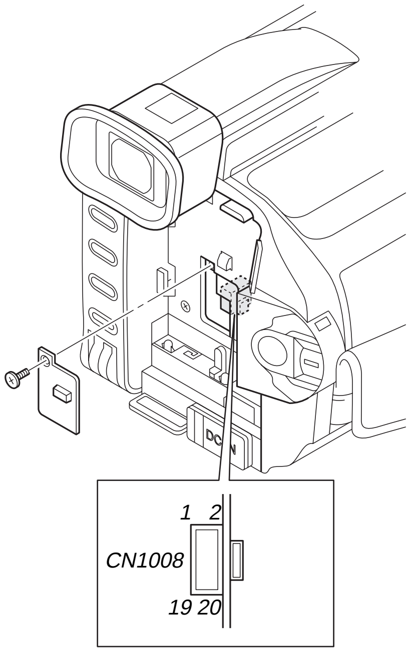


Fig. 6-1-24.

1. VCO Adjustment (DB-016 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN1008 of VC-318 board (EVF VCO)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	51, 52
Specified Value	f = 15734 ± 30Hz (NTSC) f = 15625 ± 30Hz (PAL)

Note1: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	51		Change the data and set the VCO frequency (f) to the specified value.
3	C	51		Press PAUSE button.
4	C	51		Read the data, and this data is named D_{51}.
5				Convert D_{51} to decimal notation, and obtain D_{51}'. (Note2)
6				Calculate D_{52}' using following equations (Decimal calculation) [NTSC model] When $D_{51}' \leqq 231$ $D_{52}' = D_{51}' + 24$ When $D_{51}' > 231$ $D_{52}' = 255$ [PAL model] When $D_{51}' \geqq 24$ $D_{52}' = D_{51}' - 24$ When $D_{51}' < 24$ $D_{52}' = 0$
7				Convert D_{52}' to a hexadecimal number, and obtain D_{52}. (Note2)
8	C	52	D_{52}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note2: Refer to "Table 6-4-1. Hexadecimal-decimal Conversion Table".

2. RGB AMP Adjustment (DB-016 board)

Set the D range of the RGB driver used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN1008 of VC-318 board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	54
Specified Value	A = 7.00 ± 0.05V

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	54		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3	C	54		Press PAUSE button.
4	0	01	00	Set the data.

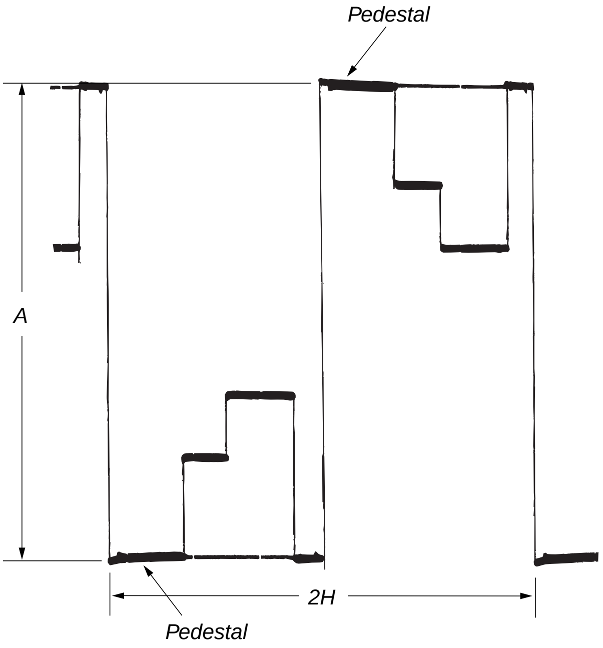


Fig. 6-1-25.

3. Contrast Adjustment (DB-016 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN1008 of VC-318 board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	58
Specified Value	A = 2.40 ± 0.05V

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	58		Change the data and set the voltage (A) between the 3 steps peak and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	58		Press PAUSE button.
4	0	01	00	Set the data.

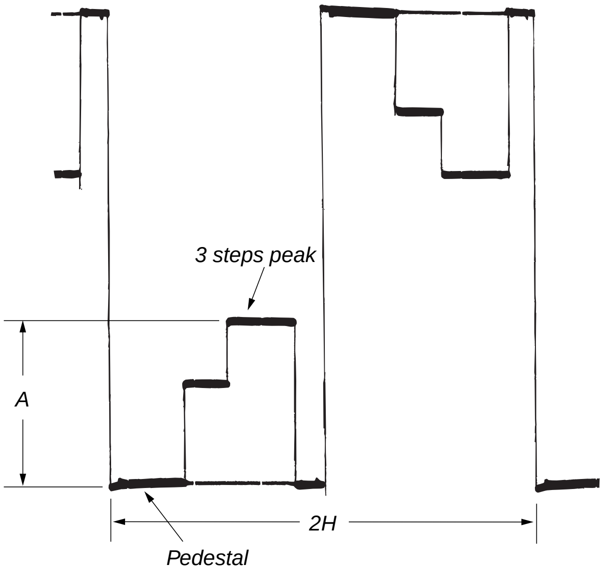


Fig. 6-1-26.

4. Backlight Adjustment (DB-016 board)

Set the backlight luminance.
If deviated, the image may become dark or bright.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN1008 of VC-318 board (EVF LED DA)
Measuring Instrument	Digital voltmeter
Adjustment Page	C
Adjustment Address	4F, 50
Specified Value	NORMAL mode : A=1.12 ± 0.05Vdc BRIGHT mode : B=2.10 ± 0.05Vdc

Note: The data of page: 0, address: 10 must be "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	4F		Change the data and set the EVF LED DA voltage (A) to the specified value of NORMAL mode.
3	C	4F		Press PAUSE button.
4	C	50		Change the data and set the EVF LED DA voltage (B) to the specified value of BRIGHT mode.
5	C	50		Press PAUSE button.
6	0	01	00	Set the data.

1-5. LCD SYSTEM ADJUSTMENT

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.
Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.
Note3: Before performing the adjustments, check the data of page: 0, address: 10 is “00”. If not, set data: 00 to this address.
Note4: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

Switch setting:
LCD BRIGHT(Touch panel setting) .... Center.

[Adjusting connector]
Most of the measuring points for adjusting the LCD system are concentrated in CN1024 of the VC-318 board. Connect the measuring instruments via the CPC jig for LCD panel (J-6082-529-A). The following table shows the Pin No. and signal name of CN1024.

Pin No.	Signal Name
1	PANEL VG
2	PANEL COM
3	GND
4	XHD OUT
5	N.C
6	N.C

Table. 6-1-13.

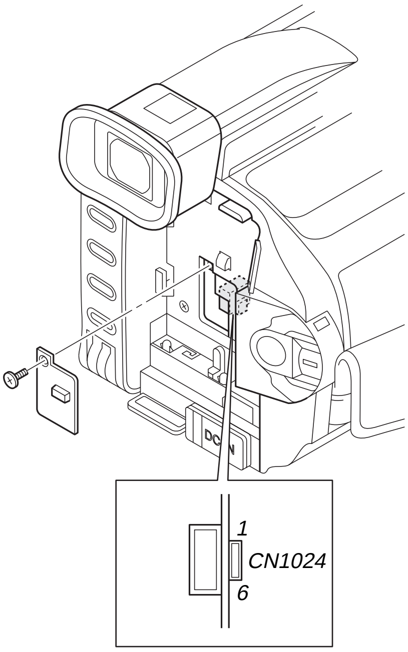


Fig. 6-1-27.

1. VCO Adjustment (PD-191 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ④ of CN1024 of VC-318 board (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	61, 62
Specified Value	f = 15734 ± 30Hz (NTSC) f = 15625 ± 30Hz (PAL)

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	61		Change the data and set the VCO frequency (f) to the specified value.
3	C	61		Press PAUSE button.
4	C	61		Read the data, and this data is named D_{61}.
5	C	62	D_{61}	Set the data, and press PAUSE button.
6	0	01	00	Set the data.

2. RGB AMP Adjustment (PD-191 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ① of CN1024 of VC-318 board (PANEL VG) Ext. trigger: Pin ② of CN1024 of VC-318 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	64
Specified Value	A = 3.50 ± 0.05V

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	64		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value. (The data should be “00” to “3F”.)
3	C	64		Press PAUSE button.
4	0	01	00	Set the data.
5				Perform “Contrast Adjustment”, “COM AMP Adjustment” and “V COM Adjustment”.

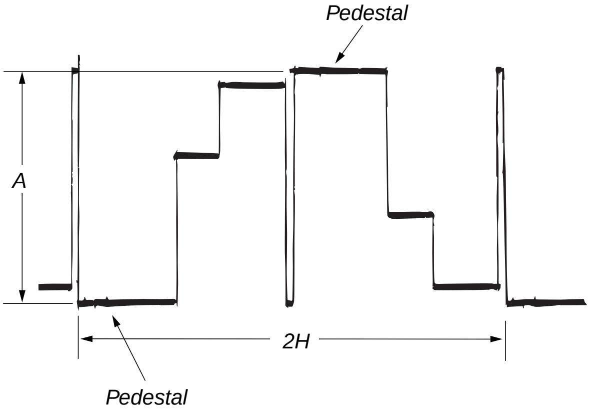


Fig. 6-1-28.

3. Contrast Adjustment (PD-191 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ① of CN1024 of VC-318 board (PANEL VG) Ext. trigger: Pin ② of CN1024 of VC-318 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	69
Specified Value	A = 3.45 ± 0.05V

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	69		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be “00” to “7F”.)
3	C	69		Press PAUSE button.
4	0	01	00	Set the data.
5				Perform “COM AMP Adjustment” and “V COM Adjustment”.

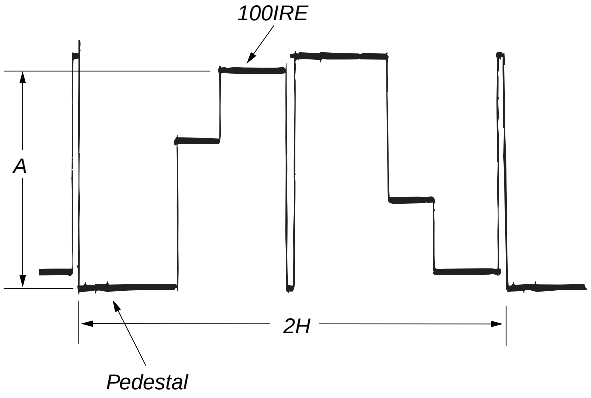


Fig. 6-1-29.

4. COM AMP Adjustment (PD-191 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ② of CN1024 of VC-318 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	66
Specified Value	A = 5.40 ± 0.05V

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	66		Change the data and set the PANEL COM signal level (A) to the specified value.
3	C	66		Press PAUSE button.
4	0	01	00	Set the data.
5				Perform “V COM Adjustment”.

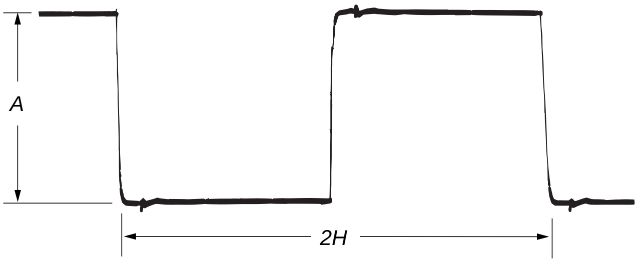


Fig. 6-1-30.

5. V COM Adjustment (PD-191 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	C
Adjustment Address	63
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: This adjustment should be carried out upon completion of the following adjustments.

RGB AMP Adjustment
Contrast Adjustment
COM AMP Adjustment

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	63		Change the data so that the brightness of the section A and that of the section B is equal.
3	C	63		Subtract 8 from the data.
4	C	63		Press PAUSE button.
5	0	01	00	Set the data.

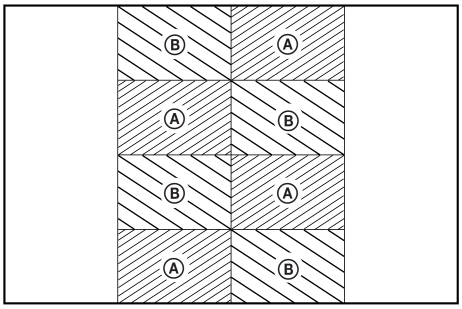


Fig. 6-1-31.

6. White Balance Adjustment (PD-191 board)

Correct the white balance.
If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	67, 68
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5701

Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	67	80	Set the data, and press PAUSE button.
3	C	68	80	Set the data, and press PAUSE button.
4	C	68		Check that the LCD screen is not colored. If not colored, proceed to step 10.
5	C	67		Change the data so that the LCD screen is not colored.
6	C	67		Press PAUSE button.
7	C	68		Change the data so that the LCD screen is not colored.
8	C	68		Press PAUSE button.
9	C	68		If the LCD screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

6-2. MECHANICAL SECTION ADJUSTMENT

2-1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- Refer to the “SECTION 2 DISASSEMBLY” section for details of removing cabinets and printed wiring boards.
- When making any adjustment to a mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section “2-5. Mode Selector II” for details on how to enter the mode shown in a rectangle ☐ mode in subsequent paragraphs of this manual.

2-1-1. Cassette Compartment Assy, Damper Assy

1. Removal Procedure

1) Set the EJ mode.
2) When the cassette compartment moves up in the direction of the arrow Ⓑ, establish the ULE mode.
3 Release the two claws ① and dowel of the damper assy and remove the damper assy.
4) Remove the shaft of the holder arm from the damper arm.
5) Remove the two screws (M1.4 × 2) ②.
6) Lift up the LS frame in the direction of the arrow Ⓒ.
7) Lift up the cassette compartment block assy in the direction of the arrow Ⓐ. While pushing the holder arm in the direction of the inside arrow Ⓔ, remove the cassette compartment block assy.

2. Attachment procedure

1) Set the ULE mode.
2) Attach the holder arm of the cassette compartment block assy to the cassette compartment slide shaft on both sides of the LS chassis block assy from inside.
3) Install the LS frame pivot into the groove Ⓓ of the LS chassis. Drop down the LS frame in the direction opposite to Ⓒ.
4) Hook the LS frame T-side bent portion on the LS chassis notch Ⓕ.
5) Attach the LS frame with two screws (M1.4 × 2) ②. Tightening torque: 0.054 ± 0.01 N•m (0.6 kg•cm).
6) While inserting the damper shaft of the cassette compartment block assy into slot of the damper arm, engage the two claws ① with the notch of the LS chassis block assy, and fix the dowel to the corresponding hole of the LS chassis block assy respectively.

Note: Check that the two claws ① and dowel do not come off.

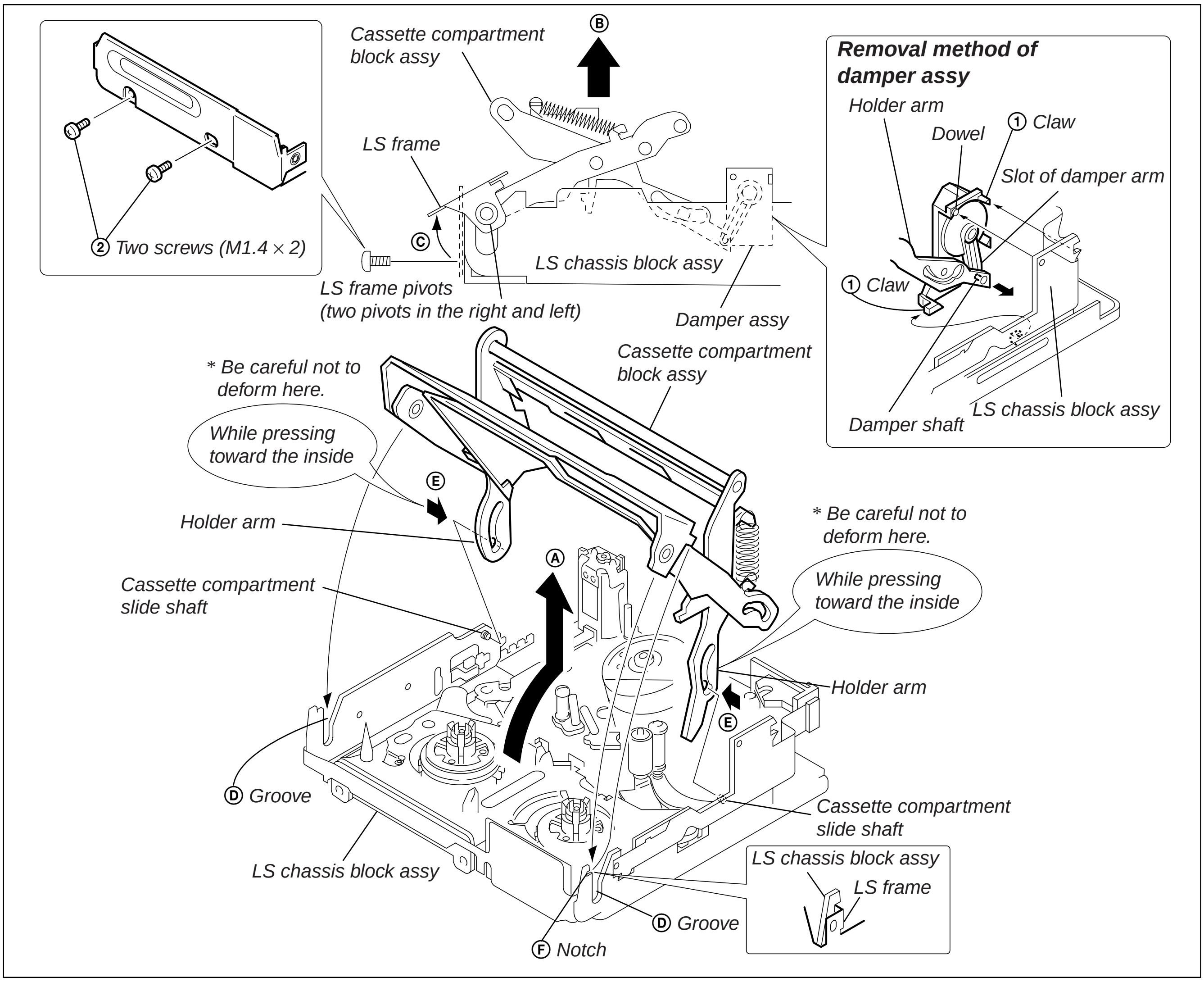

② Two screws (M1.4 × 2)
Cassette compartment block assy
Ⓑ
LS frame
Ⓒ
LS chassis block assy
LS frame pivots (two pivots in the right and left)
Damper assy
Removal method of damper assy
Holder arm
Dowel
① Claw
Slot of damper arm
① Claw
Damper shaft
LS chassis block assy
* Be careful not to deform here.
While pressing toward the inside
Ⓔ
Holder arm
Cassette compartment block assy
Ⓐ
Cassette compartment slide shaft
* Be careful not to deform here.
While pressing toward the inside
Holder arm
Ⓔ
Ⓓ Groove
LS chassis block assy
Cassette compartment slide shaft
LS chassis block assy
LS frame
Ⓓ Groove
Ⓕ Notch

Fig. 6-2-1.

2-2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-2-1. Rotary Drum Cleaning

1) Press a wiping cloth (Ref. No. J-15) moistened with cleaning fluid (Ref. No. J-14) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2-2. Tape Path System Cleaning (Refer to Fig. 6-2-2.)

1) Set the EJECT state. Clean the tape running path (TG-1, -2, -3, -4, -5, -6 and -7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. J-16) moistened with cleaning fluid.

Note 1: Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. J-16).

Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.

Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

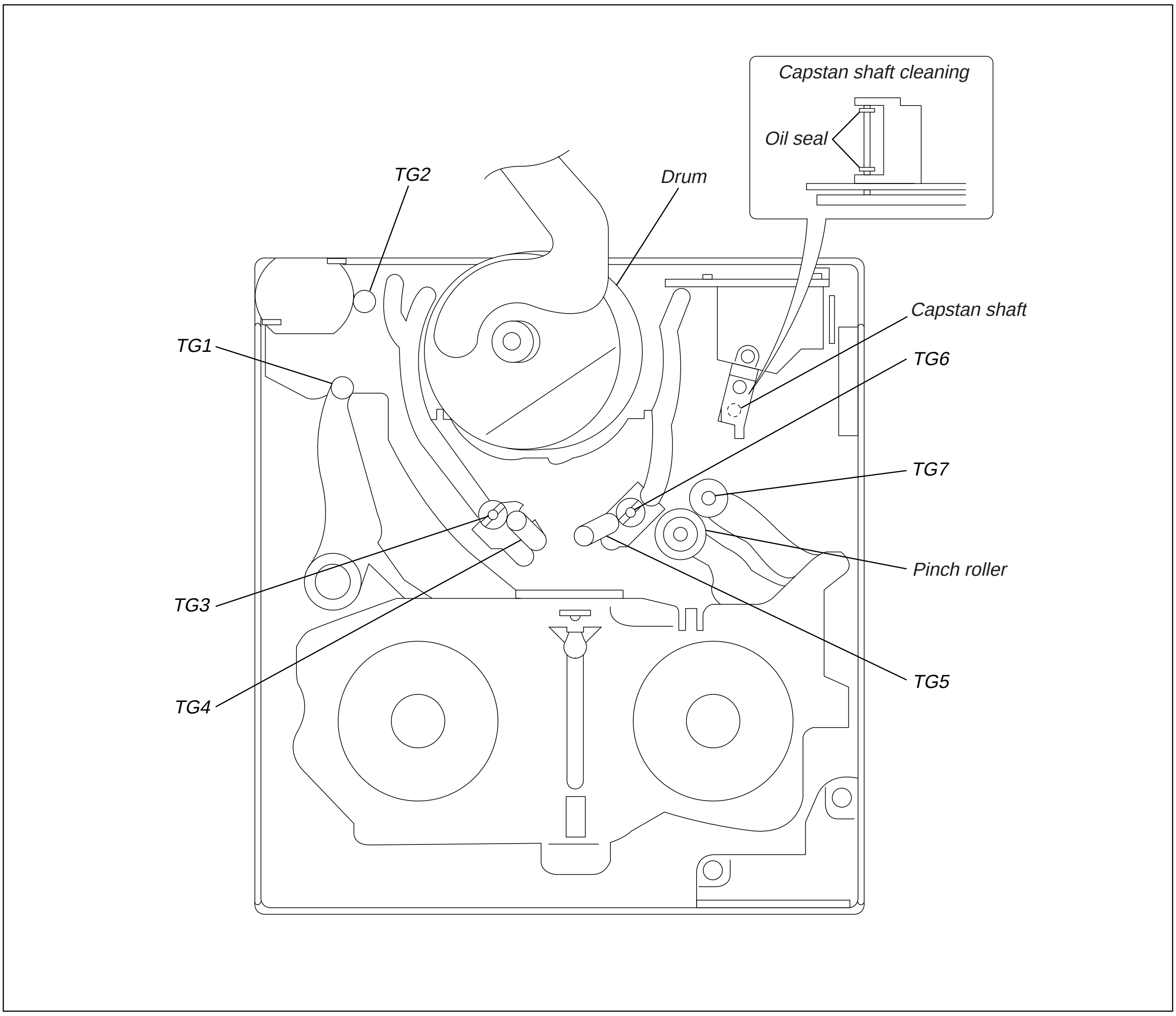


Fig. 6-2-2.

2-2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Capstan bearing	—	☆	—	☆	—	☆	—	☆	—	☆	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note 1: When the machine is overhauled, replace the parts referring to the above list.

Note 2: Grease

- Be sure to use the specified grease only. (If grease of different viscosity is used, it can cause various troubles.)
- The grease used for bearings must not contain any dust or other matter, otherwise excessive abrasion and seizure of the bearing could occur.
- A drop of grease means the amount of grease as shown in the illustration, which is the amount that is attracted to the tip of a rod of 2 mm diameter.
- FLOIL grease (SG-941): Part No. 7-662-001-39

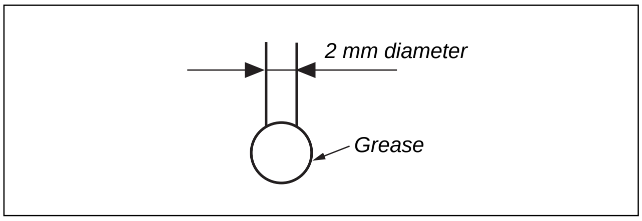


Fig. 6-2-3.

2-2-4. Mode Selector II Operating Procedure

2-4-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the "NG" indication appears and the mechanism stops moving.

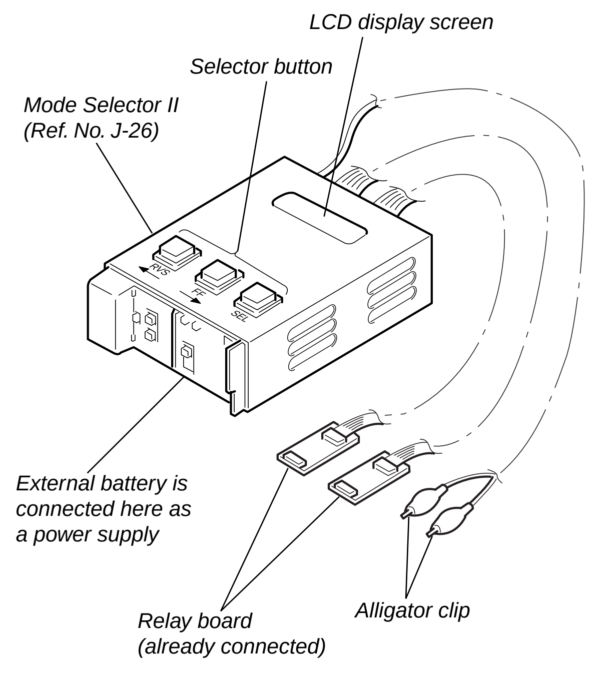

LCD display screen
Selector button
Mode Selector II
(Ref. No. J-26)
REV
FF
SEL
External battery is
connected here as
a power supply
Relay board
(already connected)
Alligator clip

Fig. 6-2-4.

Mode Selector II (J-6082-282-B) connection diagram

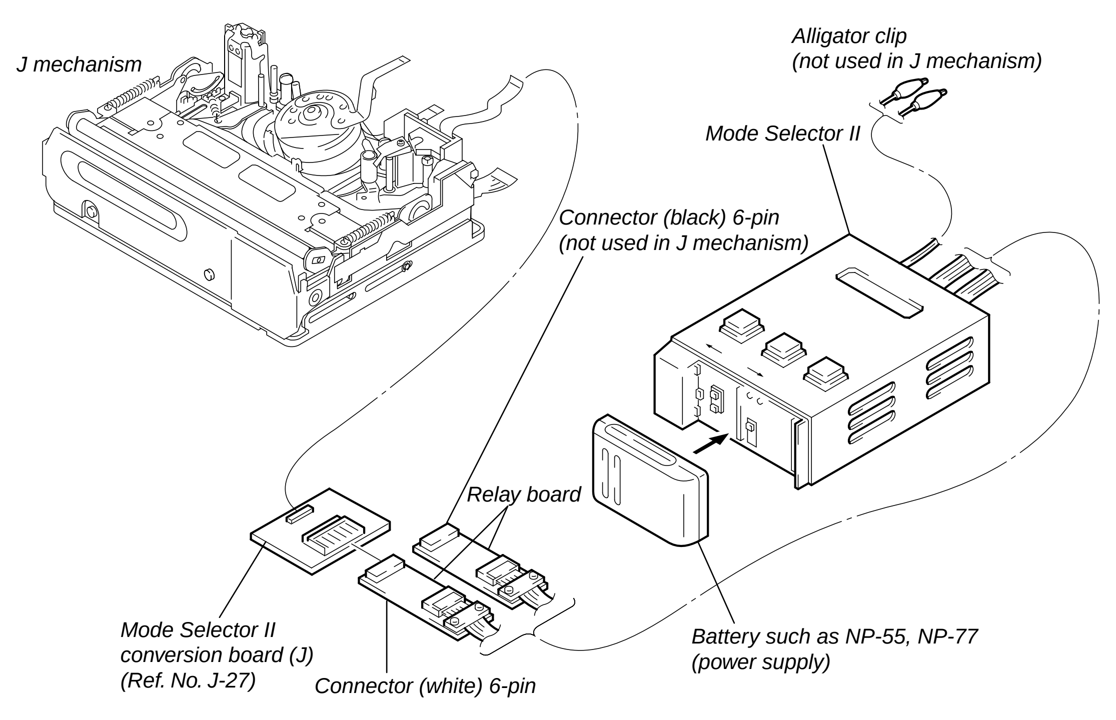

J mechanism
Alligator clip
(not used in J mechanism)
Mode Selector II
Connector (black) 6-pin
(not used in J mechanism)
Relay board
Mode Selector II
conversion board (J)
(Ref. No. J-27)
Connector (white) 6-pin
Battery such as NP-55, NP-77
(power supply)

Fig. 6-2-5.

2-4-2. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)

EJ↔ULE↔SR↔GL↔STOP↔RP

MD name Code				J Mechanism
A	B	C		
0	0	1	1	EJ
1	0	1	2	ULE
1	0	0	3	SR
1	1	0	4	GL
0	1	0	5	STOP
0	1	1	6	RP

2-3. Check, Adjustment and Replacement of Mechanical Parts

2-3-1. Drum

1. Removal procedure

1) Loosen the three screws (M1.4 × 2) ① fixing the drum and remove the drum.

2. Attachment procedure

1) Align the two reference holes A and B on the rear of the drum with the position setting reference pins A and B of the drum base assy.
2) Install the drum with the three screws (M1.4 × 2) ① and tighten the screws in order from Ⓐ, then Ⓑ and finally Ⓒ.
Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
3) Clean the drum referring to section 2-2.
4) Perform the tape path adjustment. (Refer to section 2-4, "Tape Path Adjustment".)

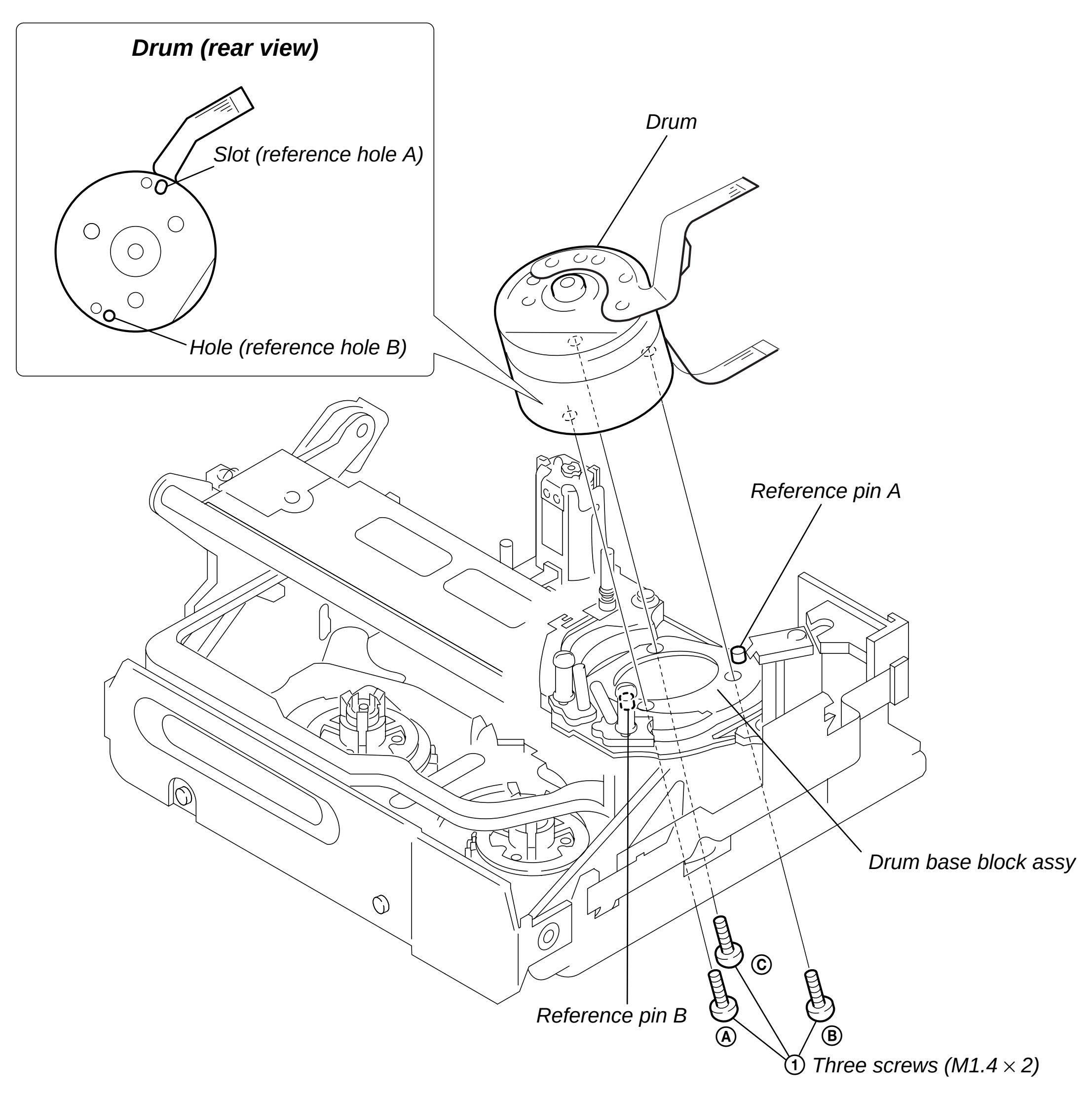

Drum (rear view)
Slot (reference hole A)
Hole (reference hole B)
Drum
Reference pin A
Drum base block assy
Ⓒ
Reference pin B
Ⓐ
Ⓑ
① Three screws (M1.4 × 2)

Fig. 6-2-6.

2-3-2. L. Motor Holder Block Assy (Loading) and FP-228 Flexible Wiring Board (DEW Sensor)

1. Removal procedure

1) Remove soldering ② from the L motor holder block assy (loading). Remove the FP-100 flexible wiring board.
2) Remove soldering ③ from the flexible wiring board FP-100. Remove the FP-228 flexible wiring board (DEW sensor).

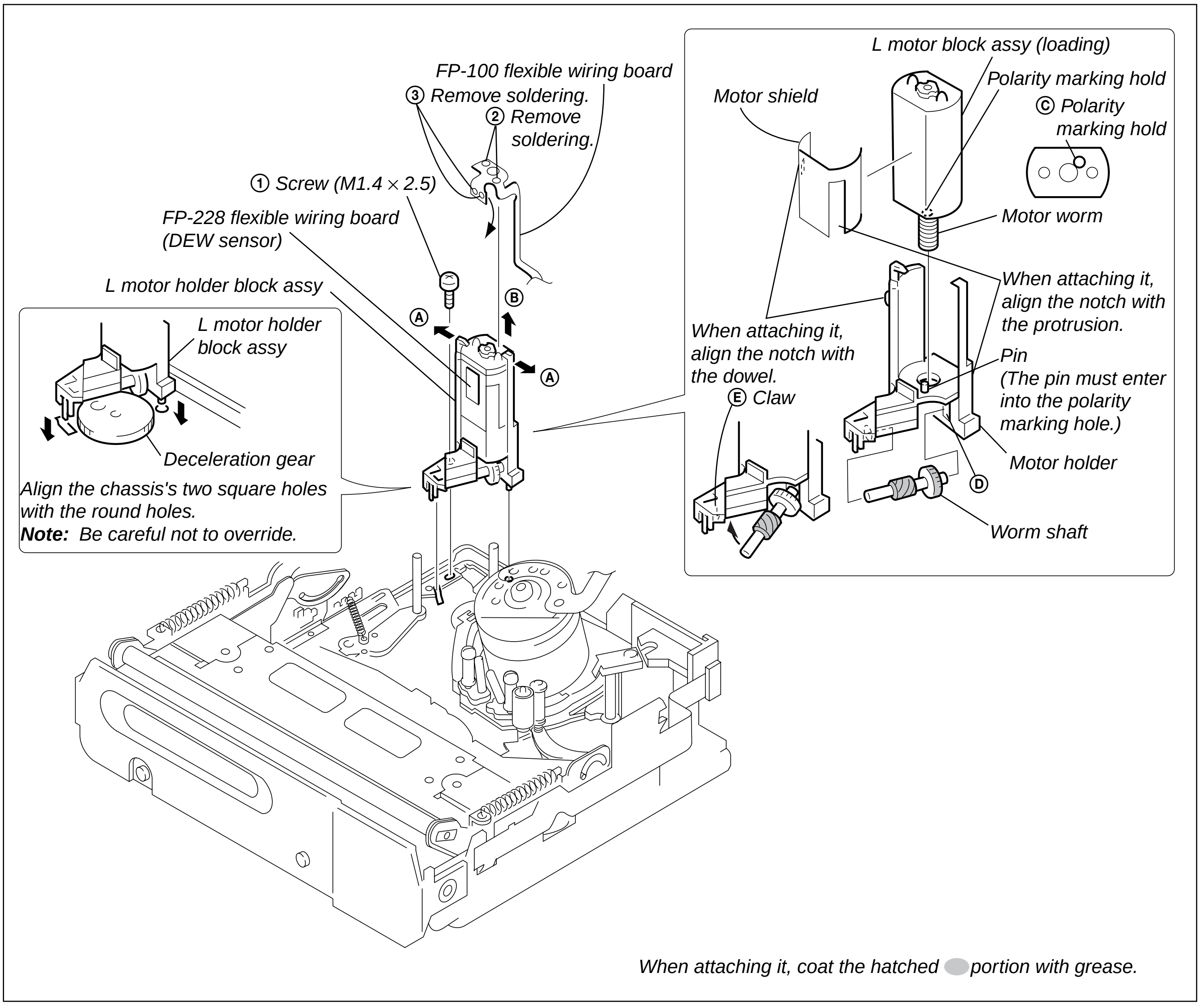
Note: Since the FP-228 flexible wiring board (DEW sensor) is attached to the motor shield by adhesive agent, be careful not to break the flexible board when removing soldering.

3) Remove the screw (M1.4 × 2.5) ①.
4) Remove the L motor holder block assy.
5) Unlock the claw Ⓔ and remove the worm shaft.
6) Remove the motor shield.
7) Unlock the two claws Ⓐ of the motor holder. Remove the L motor block assy (loading) in the direction of Ⓑ.

Note: Be careful not to touch the DEW sensor.

2. Attachment procedure

1) Check the direction of the polarity marking Ⓒ of the L motor block assy (loading). Attach the L motor block assy (loading) to the motor holder so that the L motor block assy (loading) faces the worm shaft side.
2) While aligning the slot and dowel with the motor shield, attach the motor holder to the motor holder.
3) Apply grease (1/2 drop) between the worm shaft gear and gear tooth.
4) While the worm gear is engaged with the worm shaft gear, insert the worm shaft tip into the groove Ⓑ and fix the worm shaft under the claw Ⓔ.
5) While aligning the chassis's two square holes with the two round holes, attach the motor holder block assy with the screw (M1.4 × 2.5) ①.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
6) Connect FP-228 (DEW sensor) to the FP-100 flexible wiring board by soldering. Attach the DEW sensor to the motor shield.
7) Connect the FP-100 flexible wiring board to the motor holder block assy (loading) by soldering.


FP-100 flexible wiring board
③ Remove soldering.
② Remove soldering.
① Screw (M1.4 × 2.5)
FP-228 flexible wiring board (DEW sensor)
L motor holder block assy
Ⓐ
Ⓑ
Ⓐ
L motor holder block assy
Deceleration gear
L motor block assy (loading)
Motor shield
Polarity marking hold
Ⓒ Polarity marking hold
Motor worm
When attaching it, align the notch with the protrusion.
When attaching it, align the notch with the dowel.
Ⓔ Claw
Pin
(The pin must enter into the polarity marking hole.)
Motor holder
Ⓓ
Worm shaft

Align the chassis's two square holes with the round holes.
Note: Be careful not to override.

When attaching it, coat the hatched ● portion with grease.

Fig. 6-2-7.

2-3-3. Retainer Plate Assy, LED Retainer

1. Removal procedure

1) While pressing the claw of the LED retainer in the direction of the arrow Ⓐ, remove the LED retainer.
2) Remove the LED portion ② of the FP-102 flexible wiring board.
3) Remove the two screws (M1.4 × 1.4) ①.
4) In order to remove the retainer plate assy, because it is hooked with shaft A, shaft B and shaft C, remove the retainer plate assy while moving it in the direction of the arrow Ⓑ.

2. Attachment procedure

1) Hook shaft A, shaft B and shaft C on notch A, notch B and notch C of the retainer plate assy in this order.
2) Attach the retainer plate assy with two screws (M1.4 × 1.4) ①. Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
3) Route the FP-102 flexible wiring board as shown and install the LED into the prism as shown.
4) Hook the LED retainer on Ⓓ, attach it to Ⓔ and fix them.

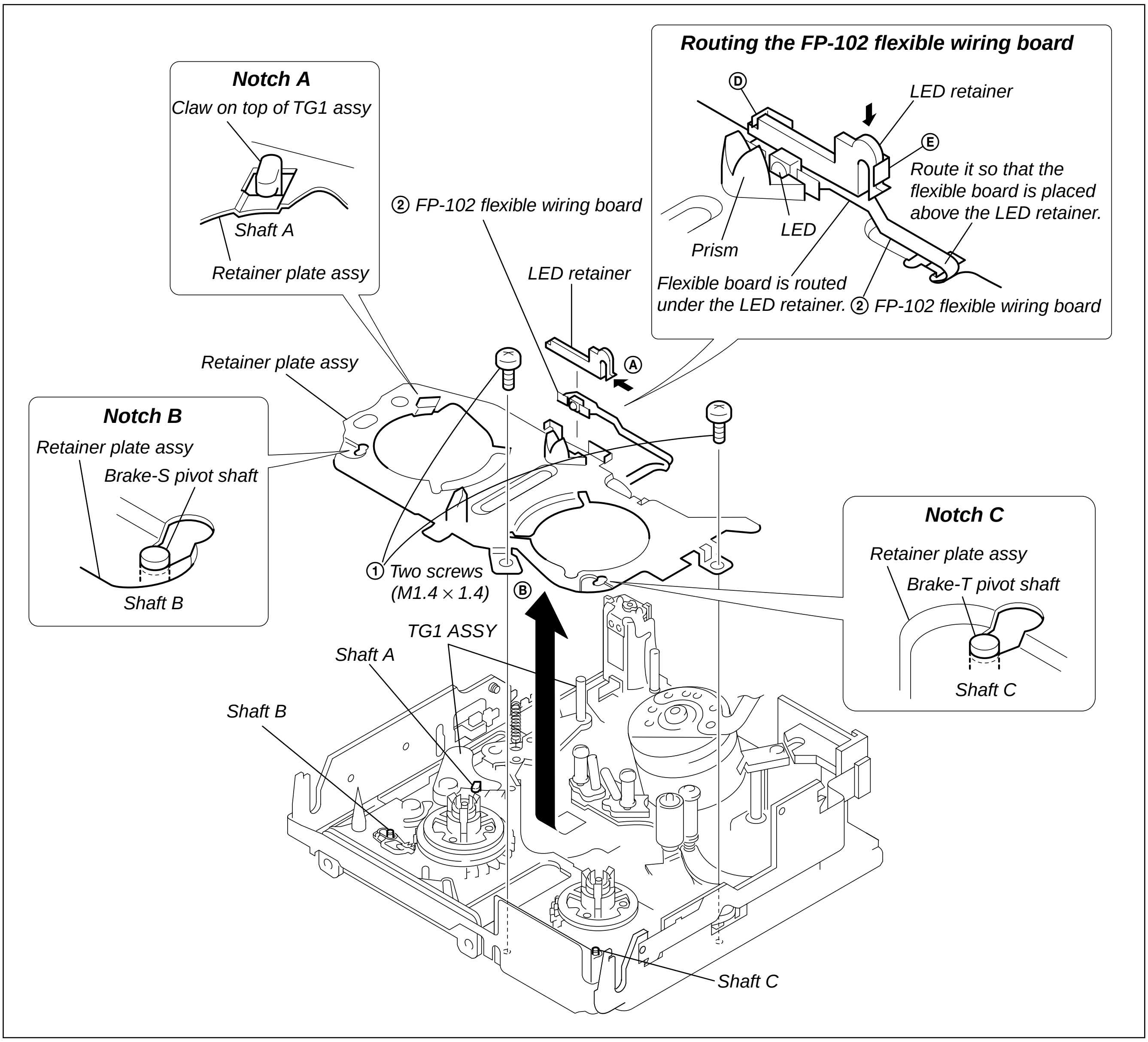

Routing the FP-102 flexible wiring board
Ⓓ
LED retainer
Ⓔ
Route it so that the flexible board is placed above the LED retainer.
LED
Prism
Flexible board is routed under the LED retainer.
② FP-102 flexible wiring board
Notch A
Claw on top of TG1 assy
Shaft A
Retainer plate assy
② FP-102 flexible wiring board
LED retainer
Retainer plate assy
Ⓐ
Notch B
Retainer plate assy
Brake-S pivot shaft
Shaft B
① Two screws (M1.4 × 1.4)
Ⓑ
Notch C
Retainer plate assy
Brake-T pivot shaft
Shaft C
TG1 ASSY
Shaft A
Shaft B
Shaft C

Fig. 6-2-8.

2-3-4. Brake-T Block Assy, T-reel Table Assy, Gooseneck Gear Assy

1. Removal procedure

1) Remove the brake-T block assy from the brake-T pivot shaft.
2) While pressing the reel claw retainer Ⓐ of the T-reel table assy down in the direction of Ⓑ, remove the reel claw Ⓒ.
3) Remove the gooseneck assy from the relay gear shaft.

Note: Be careful not to break the reel claw.

2. Attachment procedure

1) Insert the gooseneck gear assy into the center hole of the relay gear shaft. Bend the gooseneck gear assy to the S-reel table assy side.
2) Attach the brake-T block assy to the brake-T pivot shaft Ⓓ.
3) Move the brake-T counter-clockwise so that T-brake is freed. While pressing down the reel claw of the T-reel assy, fix the T-reel to the reel shaft-T by rotating the reel.
4) Check that the brake spring-T works correctly by rotating the T-reel table assy 30 degrees in the clockwise and counter-clockwise directions.

Note: The retainer on top of the brake spring-T must be hooked on the brake-T pivot shaft Ⓓ and moved down to the groove.

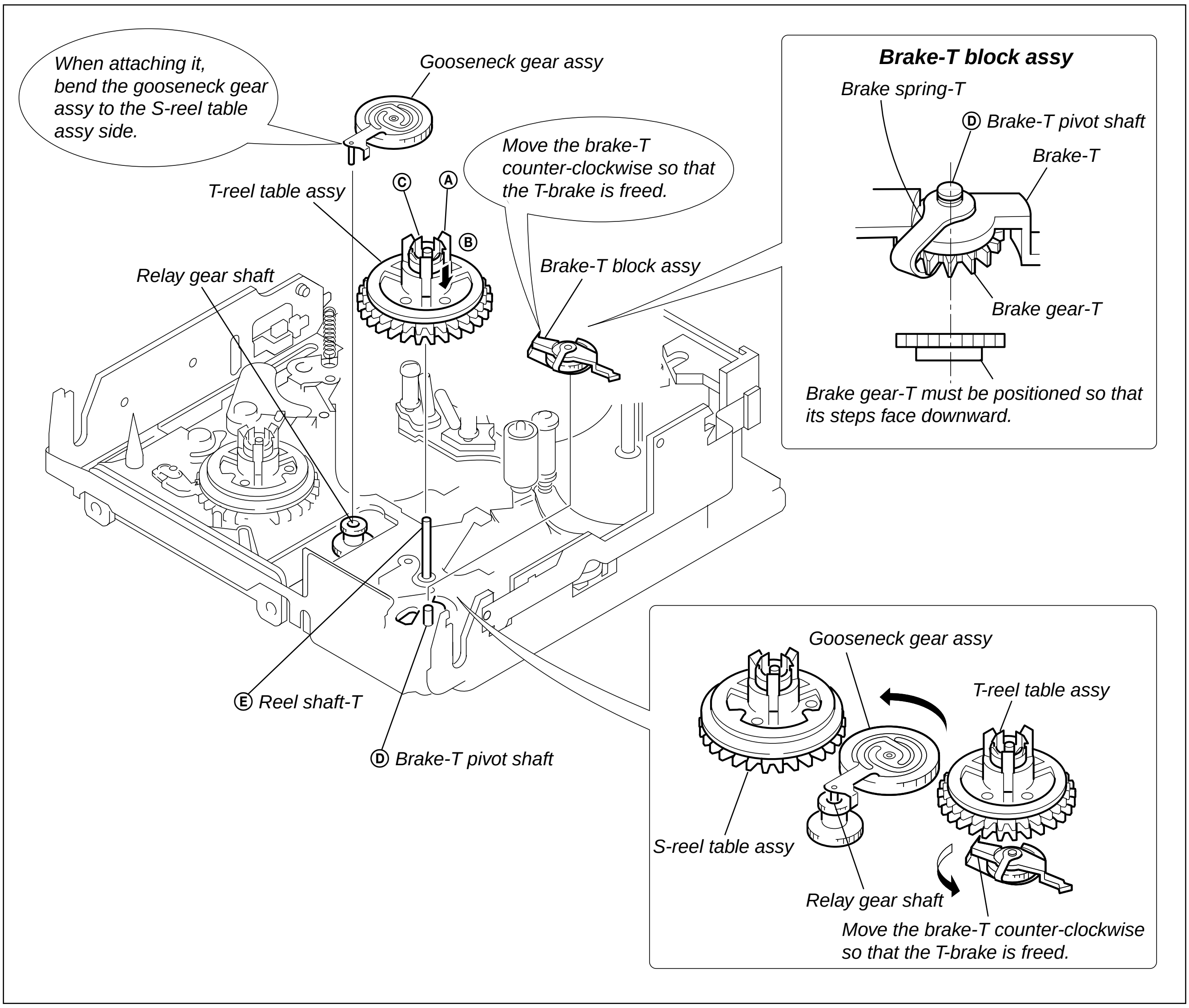

When attaching it, bend the gooseneck gear assy to the S-reel table assy side.
Gooseneck gear assy
Move the brake-T counter-clockwise so that the T-brake is freed.
T-reel table assy
Ⓒ
Ⓐ
Ⓑ
Relay gear shaft
Brake-T block assy
Ⓔ Reel shaft-T
Ⓓ Brake-T pivot shaft
Brake-T block assy
Brake spring-T
Ⓓ Brake-T pivot shaft
Brake-T
Brake gear-T
Brake gear-T must be positioned so that its steps face downward.
Gooseneck gear assy
T-reel table assy
S-reel table assy
Relay gear shaft
Move the brake-T counter-clockwise so that the T-brake is freed.

Fig. 6-2-9.

2-3-5. TG1 Assy, Tension Coil Spring (Tension Regulator)

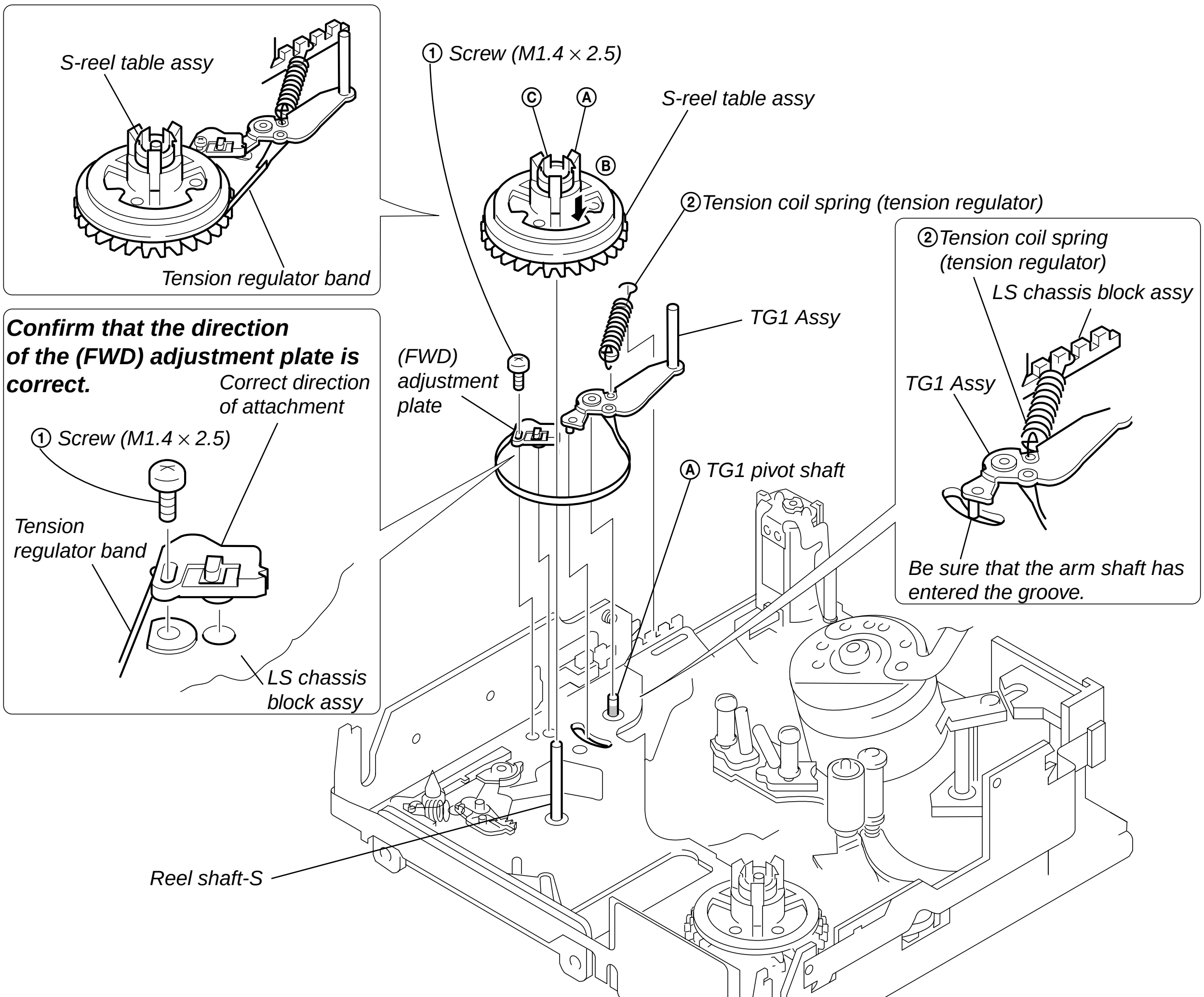
1. Removal procedure

1) Remove the screw (M1.4 × 2.5) ①.
2) Remove the tension coil spring.
3) Remove the TG1 assy tension regulator band.
4) Remove the (FWD) adjustment plate from the S-reel table. Place it between the T-reel table assy and pinch arm assy.
5) While pressing down the reel claw retainer Ⓐ of the S-reel table assy in the direction of Ⓑ, remove the reel claw Ⓒ.

Note 1: Be careful not to deform the tension regulator band.
Note 2: Be careful that grease does not attach to the tension regulator band.

2. Attachment procedure

1) Coat the root and its surroundings on TG1 pivot shaft Ⓐ with grease (1/4 drop). (Strictly observe the coating position and specified amount of grease.)
2) Attach the S-reel table assy to the reel shaft-S.
3) Attach the TG1 assy to the TG1 pivot shaft Ⓐ. Note that the TG1 drive shaft has entered the groove of the LS block assy at this moment.
4) Wrap the tension regulator band around the S-reel table assy. Fix it with the screw (M1.4 × 2.5) ① while ensuring that direction of the (FWD) adjustment plate is correct as shown.
5) Hook the tension coil spring ② on the TG1 assy and on the LS chassis block assy.
6) Clean the tip of the TG1 pivot shaft with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.
7) Perform the (FWD) position adjustment referring to section 2-3-6.
8) Perform the FWD back-tension adjustment referring to section 2-3-7.
9) Perform the reel torque check referring to section 2-3-8.


S-reel table assy
Tension regulator band
Confirm that the direction of the (FWD) adjustment plate is correct.
Correct direction of attachment
① Screw (M1.4 × 2.5)
Tension regulator band
LS chassis block assy
① Screw (M1.4 × 2.5)
Ⓒ
Ⓐ
Ⓑ
S-reel table assy
②Tension coil spring (tension regulator)
(FWD) adjustment plate
TG1 Assy
Ⓐ TG1 pivot shaft
②Tension coil spring (tension regulator)
LS chassis block assy
TG1 Assy
Be sure that the arm shaft has entered the groove.
Reel shaft-S

When attaching it, coat the hatched ● portion with grease.
FLOIL grease (SG-941): Part No. 7-662-001-39

Fig. 6-2-10.

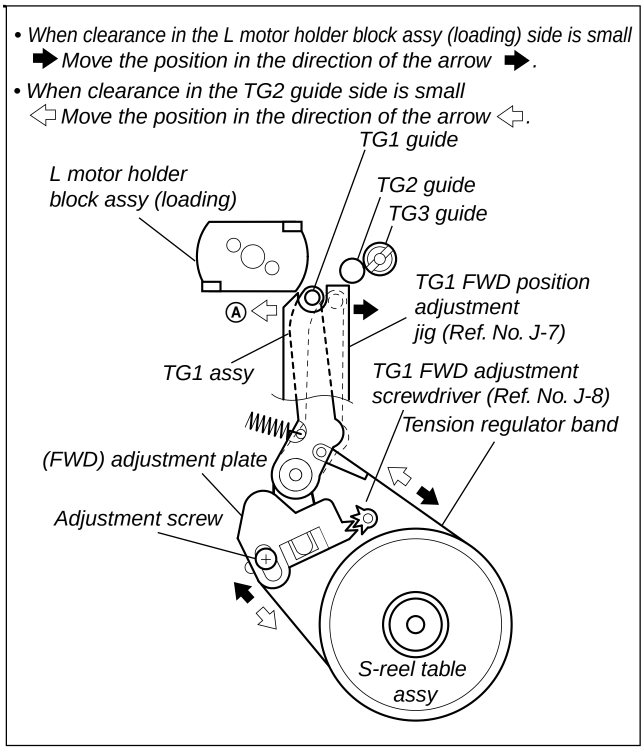
2-3-6. TG1 FWD Position Adjustment

When the TG1 assy or S-reel table is replaced, or when a part constituting these parts is replaced, perform the following adjustment.

- TG1 FWD Position Adjustment
- FWD Back-tension Adjustment (Refer to section 2-3-7.)
- Reel table (RVS) torque check (Refer to section 2-3-8.)

1. Adjustment procedure

1) Establish the $\boxed{\text{RP}}$ mode.
2) Install the TG1 adjustment jig (Ref. No. J-20) as specified by the S/T position setting.
   Note: Be careful not to damage the flexible wiring board.
3) Attach the torque screwdriver (Ref. No. J-24) and the TG1 FWD adjustment screwdriver (Ref. No. J-21) to the adjustment screw block.
4) While rotating the adjustment screwdriver a little, press it down lightly so that it is aligned with the gear of the (FWD) adjustment plate.
5) Loosen the adjustment screw that is tentatively tightened by the torque screwdriver. Perform adjustment so that TG1 comes to the center of the gauge's groove when viewed from directly above the TG1 adjustment jig (Ref. No. J-20). Then tighten the adjustment screw.
   Tightening torque: 0.0588 N•m (0.6 kg•cm).
6) Check again that the TG1 position remains in the correct position, then remove the jig.

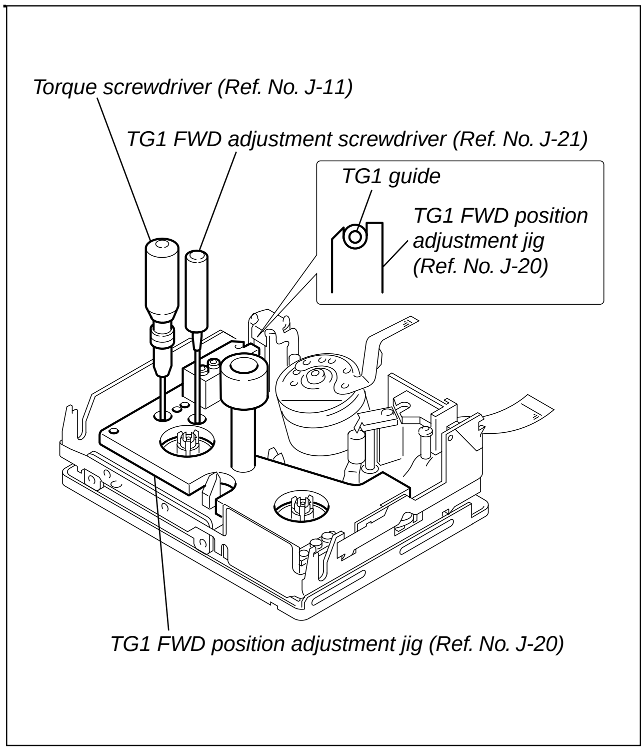


• When clearance in the L motor holder block assy (loading) side is small
➡ Move the position in the direction of the arrow ➡.

• When clearance in the TG2 guide side is small
⇦ Move the position in the direction of the arrow ⇦.

TG1 guide
L motor holder block assy (loading)
TG2 guide
TG3 guide
TG1 FWD position adjustment jig (Ref. No. J-7)
A
TG1 assy
TG1 FWD adjustment screwdriver (Ref. No. J-8)
Tension regulator band
(FWD) adjustment plate
Adjustment screw
S-reel table assy

Fig. 6-2-11.



Torque screwdriver (Ref. No. J-11)
TG1 FWD adjustment screwdriver (Ref. No. J-21)
TG1 guide
TG1 FWD position adjustment jig (Ref. No. J-20)
TG1 FWD position adjustment jig (Ref. No. J-20)

Fig. 6-2-12.

2-3-7. FWD Back-tension Adjustment

1. Adjustment procedure

1) Install the Mini DV torque cassette (Ref. No. J-19).
2) Set the RP mode. Confirm that the torque reading of the supply side is in the range of 0.45 to 0.55 mN•m (4.5 to 5.6 g•cm) including fluctuation. If the torque reading is outside the specified range, perform the following adjustment.

- If the torque reading value is higher than the specification:
  (Reduce the spring tension as follows.)
  Shift the hook position of the tension coil spring in the direction of Ⓐ.
- If the torque reading value is lower than the specification:
  (Increase the spring tension as follows.)
  Shift the hook position of the tension coil spring in the direction of Ⓑ.

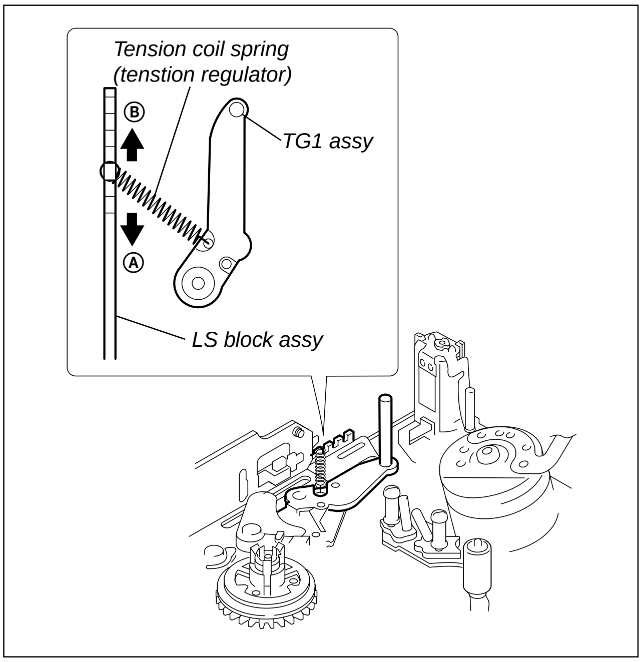


Fig. 6-2-13.

2-3-8. Reel Torque Check

1. Check procedure

[FWD torque]

1) Install the Mini DV torque cassette (Ref. No. J-19).
2) Set the FWD mode. Confirm that the center of the T-reel table torque reading value is 0.54 to 1.32 (mN•m) (5.5 to 13.5 g•cm) and the fluctuation value is 0.39 to 0.40 (mN•m) (3.9 to 4.0 g•cm).

[RVS torque]

1) Install the Mini DV torque cassette (Ref. No. J-19).
2) Set the RVS mode (by using the EDIT SEARCH (–) button of the machine). Confirm that the center of the S-reel table torque reading value is 1.37 to 2.11 (mN•m) (14 to 21.5 g•cm) and the fluctuation value is 0.39 to 0.40 (mN•m) (3.9 to 4.0 g•cm).

If either of the above specifications is not satisfied, check whether the tension regulator band has any abnormality. If it has no abnormality, replace the corresponding reel table.

2-3-9. TG3 Guide Zenith Adjustment

1) Remove the drum referring to section 2-3-1. Install the dummy drum (Ref. No. J-22).
2) Install the TG36 gauge (Ref. No. J-23) on top of the dummy drum. Rotate the slant adjustment zenith screw until the TG3 guide and TG36 gauge (Ref. No. J-23) become parallel.
3) Remove all the jigs. Attach the original drum back in its original position referring to section 3-1.
4) Clean the TG3 and TG4 guides referring to section 2-2-2.
5) Perform the tape path adjustment. (Refer to section 6-2-4, “Tape Path Adjustment”.)

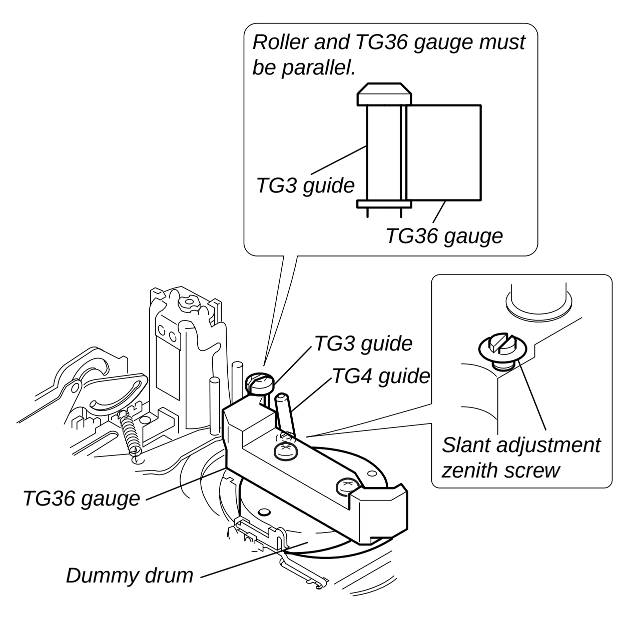

Roller and TG36 gauge must be parallel.
TG3 guide
TG36 gauge
TG3 guide
TG4 guide
Slant adjustment zenith screw
TG36 gauge
Dummy drum

Fig. 6-2-14.

2-3-10. TG6 Guide Zenith Adjustment

1. Adjustment procedure

1) Remove the drum referring to section 2-3-1. Install the dummy drum (Ref. No. J-22).
2) Install the TG36 gauge (Ref. No. J-23) on top of the dummy drum. Adjust the slant of the TG6 guide.
3) Rotate the slant adjustment zenith screw until the TG6 guide and TG36 gauge (Ref. No. J-23) become parallel.
4) Remove all the jigs. Attach the original drum back in its original position referring to section 2-3-1.
5) Clean the TG5 and TG6 guides referring to section 2-2-2.
6) Perform tape path adjustment. (Refer to section 2-4, “Tape Path Adjustment”.)

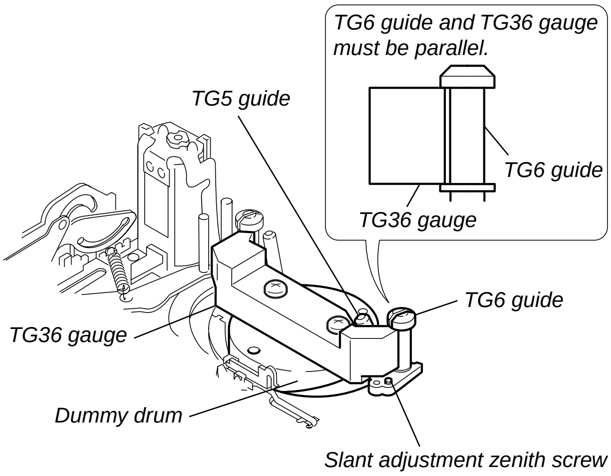

TG6 guide and TG36 gauge must be parallel.
TG5 guide
TG6 guide
TG36 gauge
TG6 guide
TG36 gauge
Dummy drum
Slant adjustment zenith screw

Fig. 6-2-15.

2-3-11. LS Cam Plate Position Adjustment

1. Adjustment procedure

1) Loosen the LS cam fixing screw (M1.4 × 4) ① by 180 degrees.
2) Establish the STOP mode.
3) While pressing down the center of the LS chassis block assy with force of 100 to 200 gf (0.98 to 1.96 N), move the LS cam plate toward the S-reel side and tighten the LS cam plate fixing screw (M1.4 × 4) ① with force of 500 to 1000 gf (4.9 to 9.8 N).
   Tightening torque: 0.059 to 0.01 N•m (0.6 kg•cm).

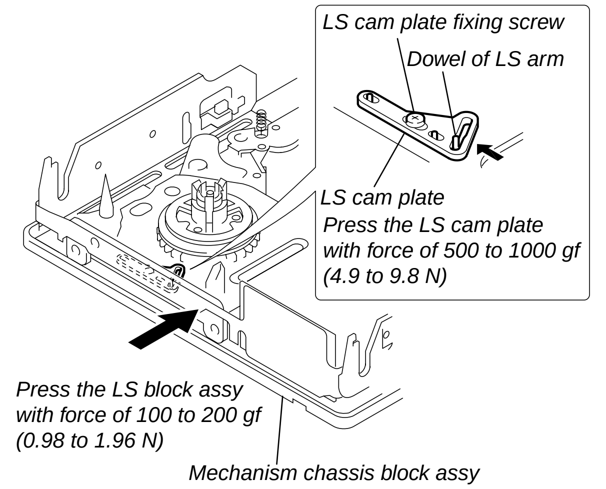

LS cam plate fixing screw
Dowel of LS arm
LS cam plate
Press the LS cam plate with force of 500 to 1000 gf (4.9 to 9.8 N)
Press the LS block assy with force of 100 to 200 gf (0.98 to 1.96 N)
Mechanism chassis block assy

Fig. 6-2-16.

2-3-12. LS Chassis Block Assy, LS Guide Retainer

1. Removal procedure

1) Remove the FP-100 flexible wiring board from the FPC connector on the FP-102 flexible wiring board.
2) Remove the screw (M1.4 × 2.5) ②. Remove the FPC holder from DC motor (capstan).
3) Remove the two screws (M1.4 × 2) ①.
4) Remove the LS retainer in the direction of the arrow Ⓐ on the top.
5) Remove the E-type stop ring 1.5 ③.
6) Remove the LS chassis block assy in the direction of the arrow Ⓑ.

2. Attachment procedure

1) Confirm that the brake-T block assy has been moved in the counter-clockwise direction Ⓒ. While pressing the TG7 block in the direction of the arrow Ⓓ, insert the LS guide shafts T1 and T2 of the LS chassis block assy into the slots of the mechanism chassis with slanted angle.
2) While inserting the LS arm dowel into the LS cam plate groove, insert the LS guide shafts S1 and S2 into the slots of the LS chassis block assy as shown.
3) Insert the LS guide retainer from the top, align it with the LS guide shafts S1 and S2 and fix it with the screw (M1.4 × 2) ①. Tightening torque: 0.059 to 0.01 N•m (0.6 kg•cm).
4) Confirm that the LS guide retainer has play, is not lifted up, is not installed in opposite direction and has not been deformed.
5) Attach the E-type stop ring 1.5 ③ into the LS guide shaft T1.
6) Insert the FPC holder into DC motor (capstan) in the direction of the arrow Ⓔ and fix it with the screw (M1.4 × 2.5) ②.
7) Connect the flexible wiring board coming from the FP-100 flexible wiring board into the FPC connector.

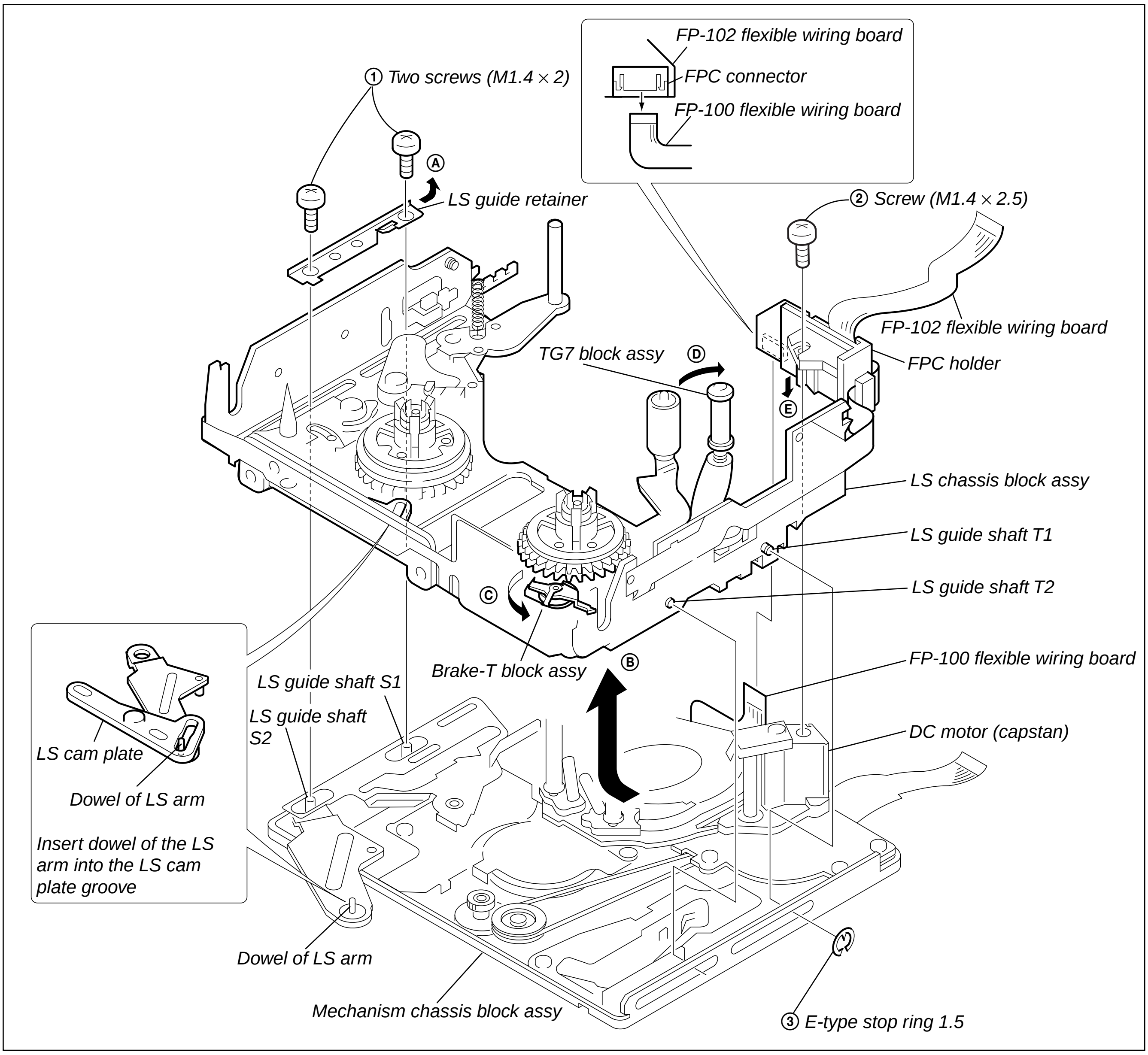

FP-102 flexible wiring board
FPC connector
FP-100 flexible wiring board
① Two screws (M1.4 × 2)
Ⓐ
LS guide retainer
② Screw (M1.4 × 2.5)
FP-102 flexible wiring board
FPC holder
TG7 block assy
Ⓓ
Ⓔ
LS chassis block assy
LS guide shaft T1
LS guide shaft T2
Ⓒ
Brake-T block assy
Ⓑ
FP-100 flexible wiring board
LS guide shaft S1
LS guide shaft S2
DC motor (capstan)
LS cam plate
Dowel of LS arm
Insert dowel of the LS arm into the LS cam plate groove
Dowel of LS arm
Mechanism chassis block assy
③ E-type stop ring 1.5

Fig. 6-2-17.

2-3-13. LS Cam Plate, Tension Coil Spring (Brake-S), Brake-S, Torsion Coil Spring (Brake Arm), Cassette Position Set-S, Brake-S Driving Arm Assy

1. Removal procedure

1) Remove the screw (M1.4 × 1.4) ①.
2) Remove the LS cam plate.
3) Remove the tension coil spring (brake-S).
4) Remove the brake-S.
5) Remove the screw (M1.4 × 2) ②.
6) Remove the torsion coil spring (brake arm).
7) Remove the cassette position set-S from groove of the LS block assy in the direction of the arrow Ⓐ.
8) Remove the brake-S drive arm assy from groove of the LS block assy in the direction of the arrow Ⓑ.

2. Attachment procedure

1) Insert the brake-S drive arm assy under groove of the LS chassis block assy. Attach the brake-S drive arm assy to the brake-S arm shaft and to the brake-S pivot shaft.
2) Insert the cassette position set-S under the groove of the LS chassis block assy. Attach the cassette position set-S to the brake-S arm shaft.
3) Attach the torsion coil spring (brake arm).
4) Attach the screw (M1.4 × 2) ② to the brake-S arm shaft.
5) Attach the brake-S to the brake-S arm bearing and to the brake-S pivot shaft.
6) Hook the tension coil spring (brake-S) to the spring stay of the cassette position set-S and the spring stay of the brake-S.
7) Align the slot of the LS cam plate with the dowel. Move then in the direction toward the arrow Ⓒ and attach the screw (M1.4 × 1.4) ①.
8) Perform the LS cam plate position adjustment referring to section 2-3-11.

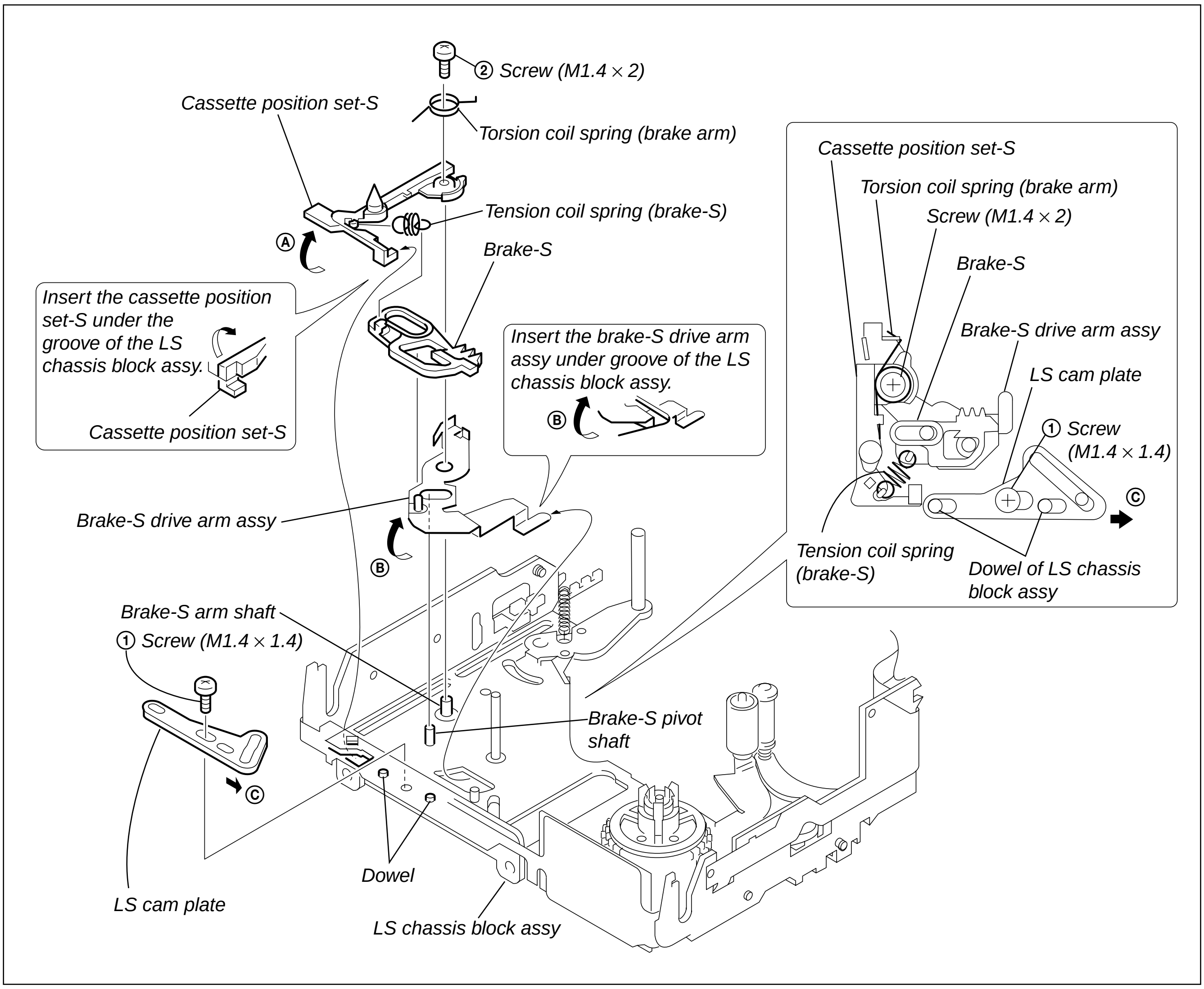

② Screw (M1.4 × 2)
Cassette position set-S
Torsion coil spring (brake arm)
Tension coil spring (brake-S)
Ⓐ
Brake-S
Insert the cassette position set-S under the groove of the LS chassis block assy.
Cassette position set-S
Insert the brake-S drive arm assy under groove of the LS chassis block assy.
Ⓑ
Brake-S drive arm assy
Ⓑ
Brake-S arm shaft
① Screw (M1.4 × 1.4)
Ⓒ
Brake-S pivot shaft
LS cam plate
Dowel
LS chassis block assy
Cassette position set-S
Torsion coil spring (brake arm)
Screw (M1.4 × 2)
Brake-S
Brake-S drive arm assy
LS cam plate
① Screw (M1.4 × 1.4)
Ⓒ
Tension coil spring (brake-S)
Dowel of LS chassis block assy

Fig. 6-2-18.

2-3-14. TG7 Block Assy, Torsion Coil Spring (TG7 Return, Pinch Return), Pinch Arm Assy

1. Removal procedure

1) Remove the TG7 block assy in the direction of the arrow Ⓐ.
2) Remove the torsion coil spring (TG7 return) ①.
3) Remove the pinch arm assy in the direction of the arrow Ⓑ.
4) Remove the torsion coil spring (pinch roller return) ②.

2. Attachment procedure

1) Install the torsion coil spring (pinch roller return) ①. (Insert the 90-degree-bent portion of the torsion spring into the square hole of the LS chassis block assy.)
2) Attach the pinch arm assy to the pinch arm bearing.
3) Attach the torsion coil spring (TG7 return) ①.
4) While aligning the TG7 block assy with the groove of the LS chassis block assy, install the TG7 block assy into the TG7 block assy bearing.

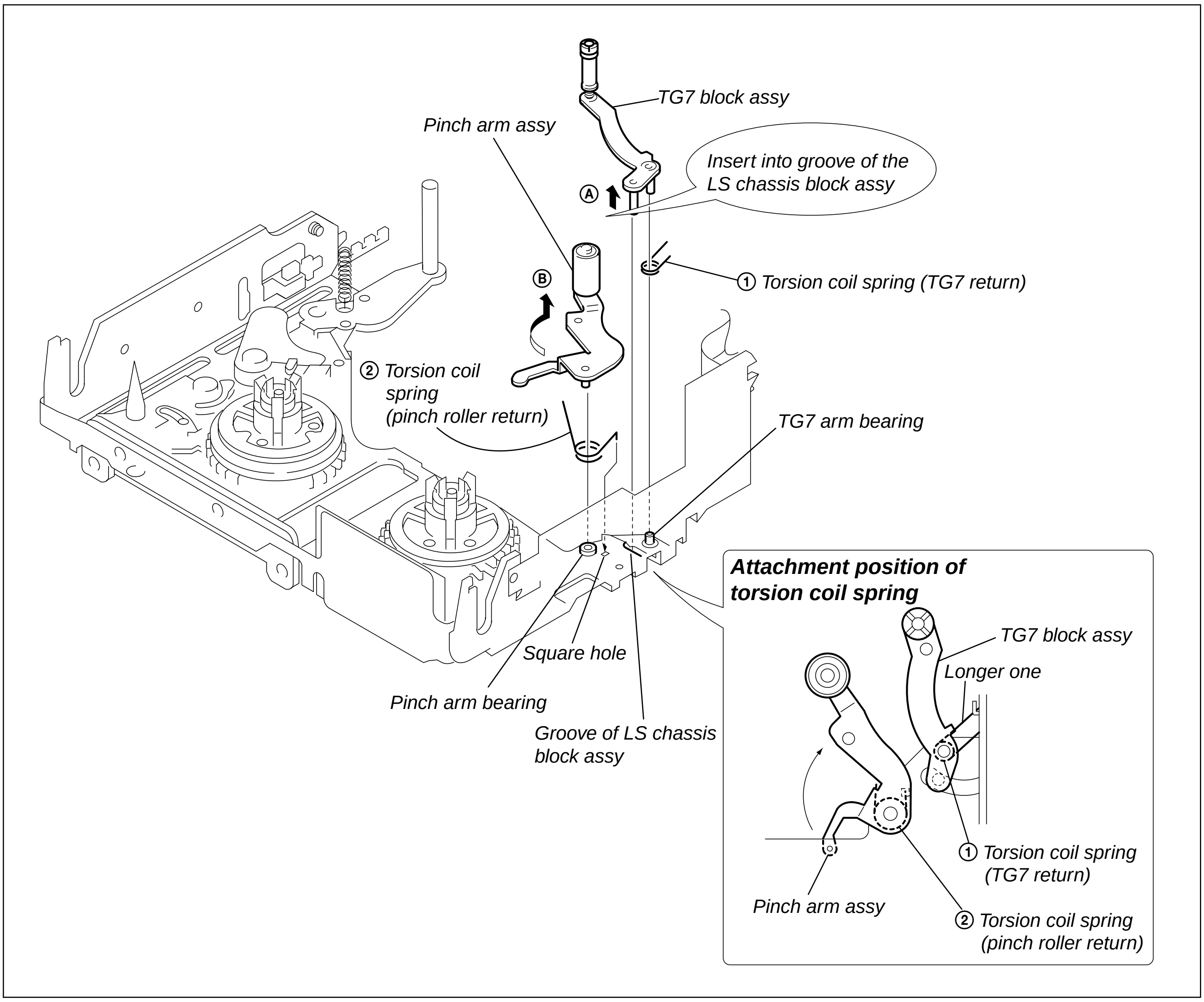

TG7 block assy
Pinch arm assy
Insert into groove of the LS chassis block assy
Ⓐ
Ⓑ
① Torsion coil spring (TG7 return)
② Torsion coil spring (pinch roller return)
TG7 arm bearing
Square hole
Pinch arm bearing
Groove of LS chassis block assy
Attachment position of torsion coil spring
TG7 block assy
Longer one
① Torsion coil spring (TG7 return)
Pinch arm assy
② Torsion coil spring (pinch roller return)

Fig. 6-2-19.

2-3-15. Layout Diagram of FP-102 Flexible Wiring Board

1. Removal procedure

1) Remove the sensor holder-T from groove of the LS chassis block assy in the direction of the arrow Ⓐ.
2) Remove the cassette holder-S by pushing out the hook under the LS chassis block assy towards the direction of the arrow Ⓑ.

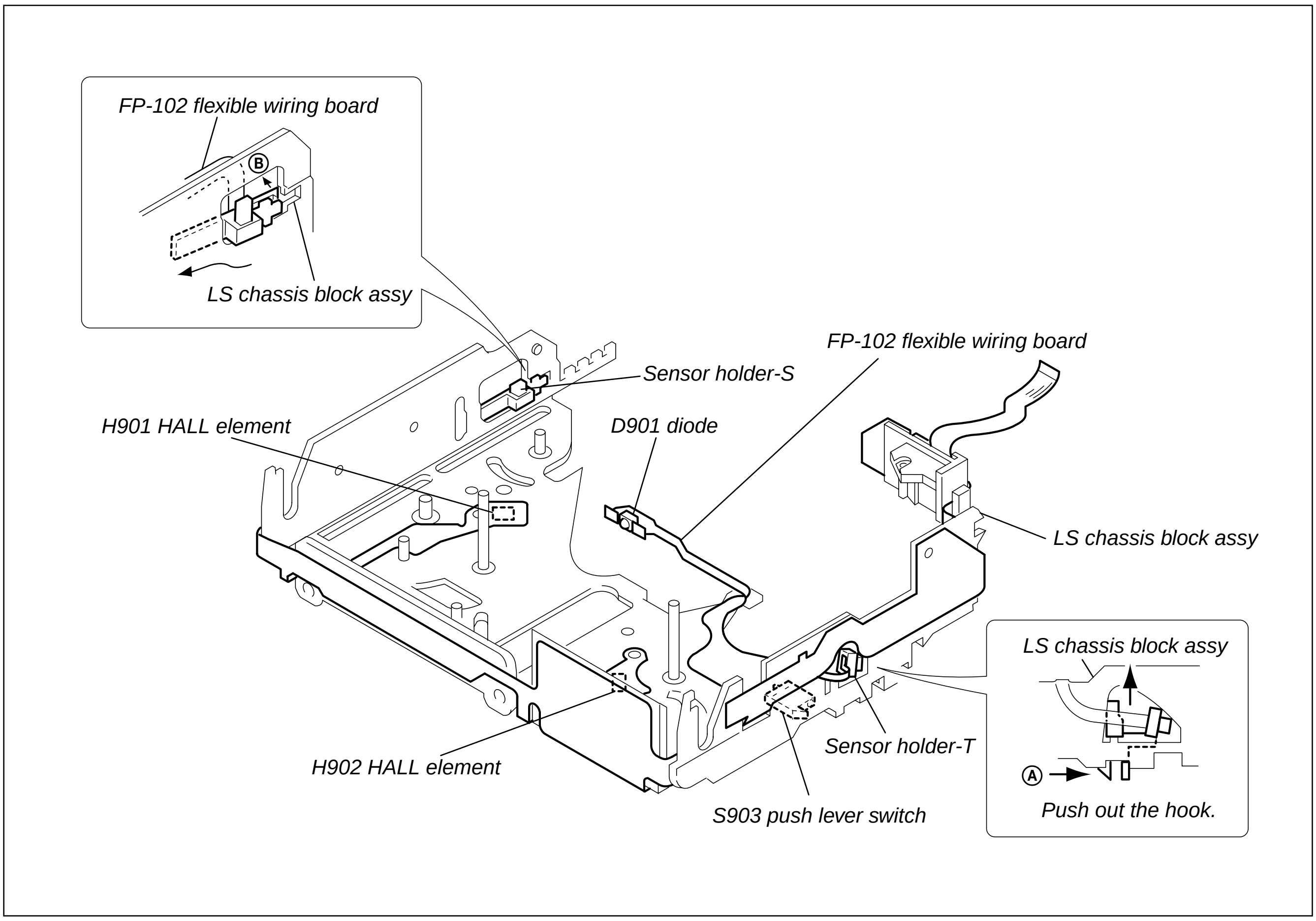

FP-102 flexible wiring board
Ⓑ
LS chassis block assy
FP-102 flexible wiring board
Sensor holder-S
H901 HALL element
D901 diode
LS chassis block assy
LS chassis block assy
Ⓐ
Push out the hook.
Sensor holder-T
H902 HALL element
S903 push lever switch

Fig. 6-2-20.

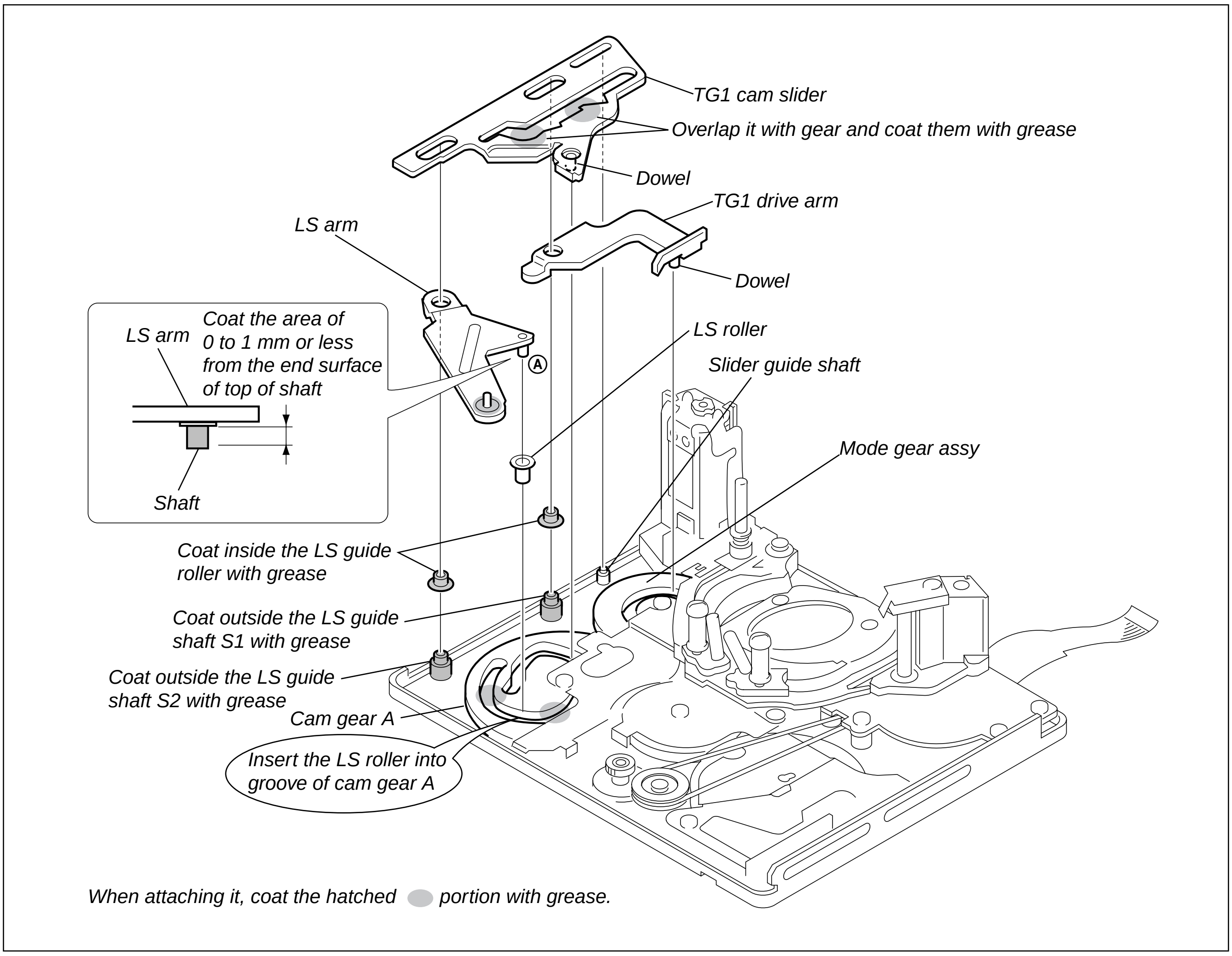
2-3-16. TG1 Cam Slider, LS Arm, LS Roller, Mode Gear Assy, LS Guide Roller

1. Removal procedure

1) Remove the TG1 cam slider.
2) Remove the LS arm. (At this moment, be careful that the LS roller can come out of cam gear A groove.)
3) Remove the LS roller from the LS arm.
4) Remove the LS guide roller.

2. Attachment procedure

1) Coat inside the LS guide roller with grease (1/4 drop of grease) and insert it into the LS guide shafts S1 and S2.
2) Coat outside the LS guide roller with grease (1/2 drop of grease) at the two points as shown.
3) While aligning dowel of the TG1 drive arm with groove of the mode gear assy, insert the TG1 drive arm into the LS guide shaft S1.
4) Coat the portion Ⓐ of the LS arm with grease (1/4 drop of grease) and insert the LS guide roller.
5) Coat both sides of the groove of the cam gear A with grease (1/2 drop of grease). Insert the LS guide roller into groove of the cam gear A and insert the LS arm into the LS guide shaft S2.
6) Insert the TG1 cam slider into the three positions of the LS guide shaft S1, S2 and slider guide shaft. Insert dowel of the TG1 cam slider into groove of the cam gear A.
7) Be careful that greasing points are correct, amount of grease is correct and the LS arm and the TG1 drive arm are not floating.


TG1 cam slider
Overlap it with gear and coat them with grease
Dowel
TG1 drive arm
LS arm
Dowel
LS arm
Coat the area of
0 to 1 mm or less
from the end surface
of top of shaft
Shaft
LS roller
Ⓐ
Slider guide shaft
Mode gear assy
Coat inside the LS guide roller with grease
Coat outside the LS guide shaft S1 with grease
Coat outside the LS guide shaft S2 with grease
Cam gear A
Insert the LS roller into groove of cam gear A

When attaching it, coat the hatched ● portion with grease.

Fig. 6-2-21.

2-3-17. Guide Rail

1. Removal procedure

1) Remove the screw (M1.4 × 2) ①.
2) When removing the guide rail, be careful that claws of the drum base block assy are fully released. Remove the S-side rail, T-side rail and rail of DC motor side in this order.

2. Attachment procedure

1) Engage the claws of the guide rails with the claws of the drum base block assy starting engaging the claw from the T-side rail and S-side rail.
   Note: There must no deformation of guide rail, claws must not be broken, claws must not override, claws must not become white, not be stained or have no play.
2) Fix the guide rail with the screw (M1.4 × 2) ①.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)

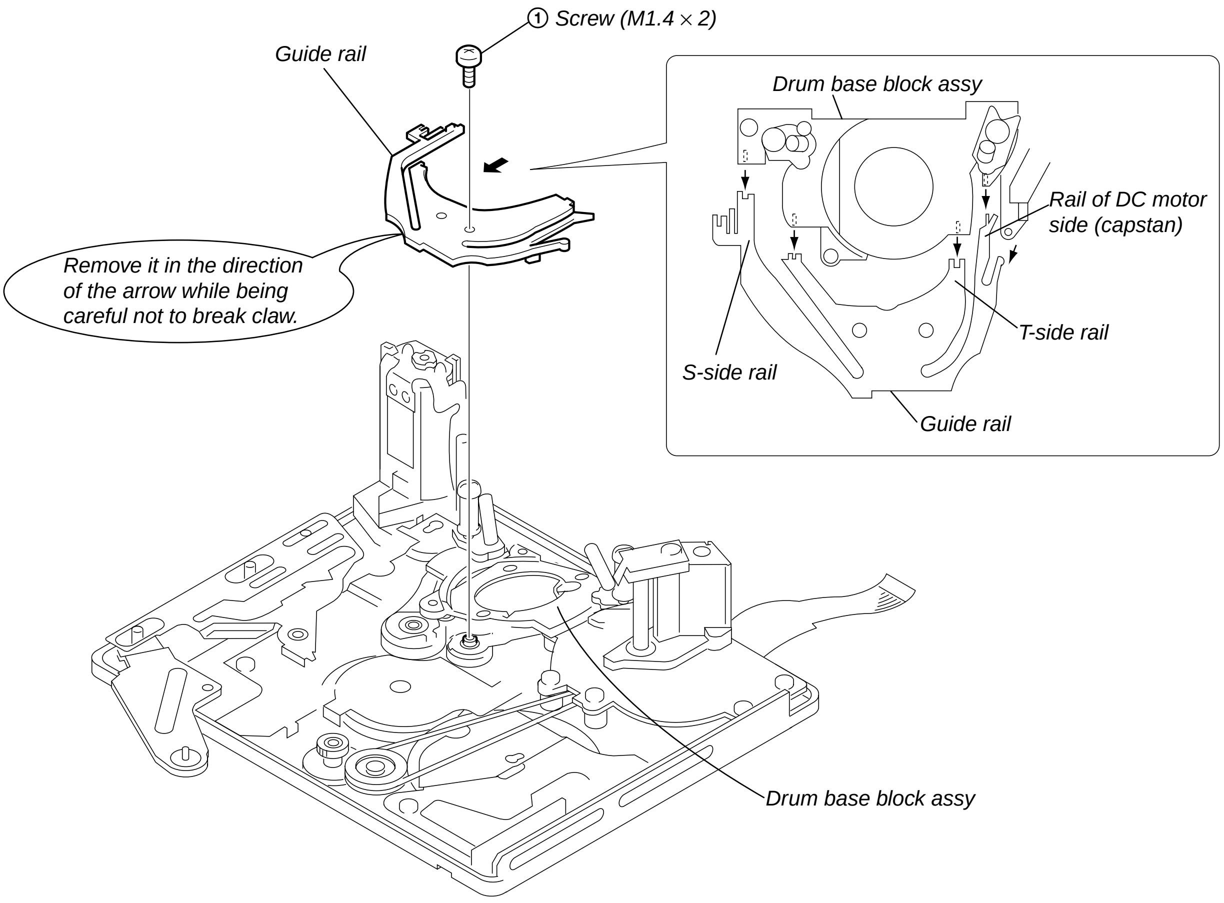

① Screw (M1.4 × 2)
Guide rail
Drum base block assy
Rail of DC motor side (capstan)
Remove it in the direction of the arrow while being careful not to break claw.
T-side rail
S-side rail
Guide rail
Drum base block assy

Fig. 6-2-22.

2-3-18. Gear Cover B, GL Driving Gear

1. Removal procedure

1) Remove the screw (M1.4 × 2) ①.
2) Remove the gear cover B in the direction of the arrow Ⓐ.
3) Remove the GL drive gear.

2. Attachment procedure

1) Coat the cam gear A and the GL drive gear with grease (1/2 drop). (Refer to Fig. 2.)
2) Refer to Fig. 1. While adjusting phase of the GL drive gear as shown, insert the GL drive gear into the GL drive shaft. (Insert it while moving the GL drive gear in the clockwise direction.)
3) Insert the two claws of the gear cover B into the square holes of mechanism chassis.
4) Fix the GL drive shaft with the screw (M1.4 × 2) ①. Be sure that the gear cover B must not have any play.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)

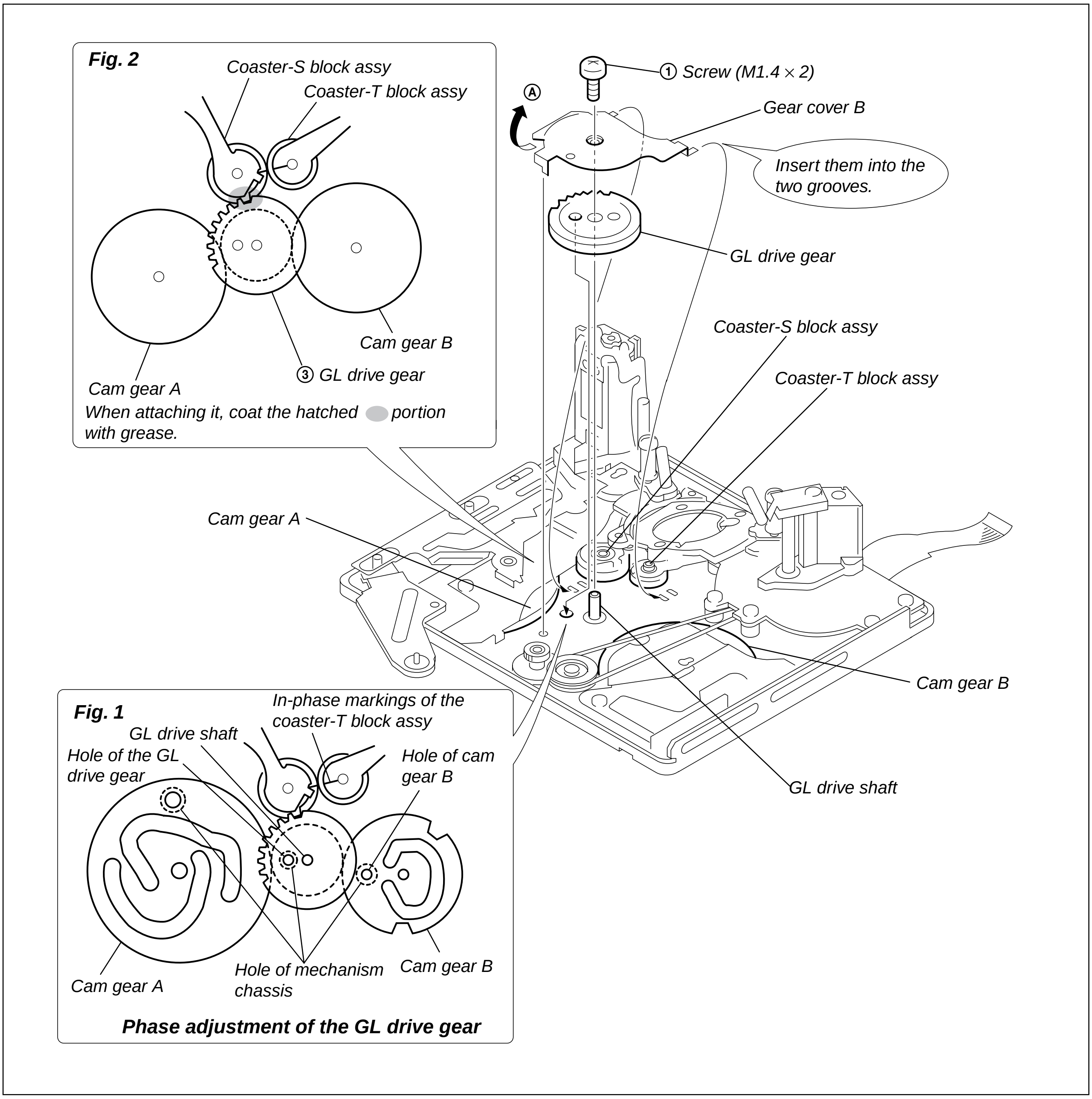


Fig. 2
Coaster-S block assy
Coaster-T block assy
Cam gear B
③ GL drive gear
Cam gear A
When attaching it, coat the hatched ● portion with grease.
① Screw (M1.4 × 2)
Ⓐ
Gear cover B
Insert them into the two grooves.
GL drive gear
Coaster-S block assy
Coaster-T block assy
Cam gear A
Cam gear B
GL drive shaft
Fig. 1
In-phase markings of the coaster-T block assy
GL drive shaft
Hole of the GL drive gear
Hole of cam gear B
Cam gear A
Hole of mechanism chassis
Cam gear B
Phase adjustment of the GL drive gear

Fig. 6-2-23.

2-3-19. Drum Base Block Assy, Coaster-S Block Assy, Coaster-T Block Assy

1. Removal procedure

1) Remove three screws (M1.4 × 2.5).
2) Move the coaster-S block assy and coaster-T block assy out from the drum base groove in the direction of the arrow Ⓐ.
3) Remove the drum base block assy.
4) Remove the coaster-S block assy from the GL gear shaft-S.
5) Remove the coaster-T block assy from the GL gear shaft-T.

2. Attachment procedure

1) Insert a coaster-S block assy and coaster-T block assy into the drum base groove.
2) Place a drum base block assy on top of the mechanism chassis assy. Insert a coaster-T block assy into the GL gear shaft-T.
3) Insert a coaster-S block assy in the oblique direction. While adjusting phase so that the spring of coaster-S block assy agrees with the GL gear lever marking of the coaster-T block assy, insert a coaster-S block assy into the GL gear shaft-S.
   Note: • There must be no phase difference.
   • Do not remove coaster-S block assy and coaster-T block assy from the drum base block assy.
4) Determine the exact position of the drum base block assy that has been tentatively placed, on the mechanism chassis assy. Tighten the screws at Ⓐ, Ⓑ and Ⓒ in this order.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)

Note: Be careful that the position setting boss of drum base block assy does not override on the mechanism chassis.

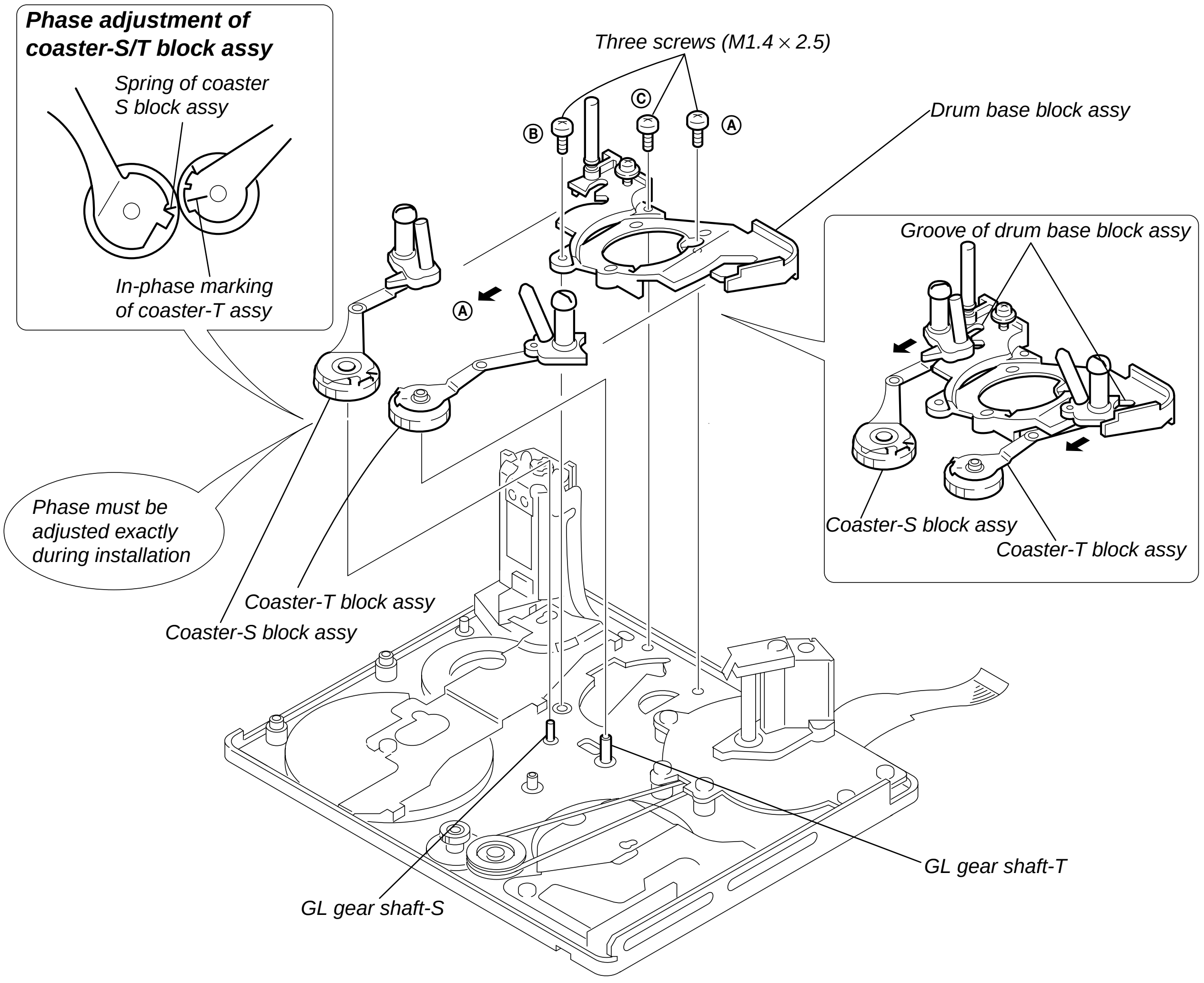

Phase adjustment of coaster-S/T block assy
Spring of coaster S block assy
In-phase marking of coaster-T assy
Three screws (M1.4 × 2.5)
Ⓒ
Ⓑ
Ⓐ
Drum base block assy
Groove of drum base block assy
Ⓐ
Phase must be adjusted exactly during installation
Coaster-T block assy
Coaster-S block assy
Coaster-S block assy
Coaster-T block assy
GL gear shaft-T
GL gear shaft-S

Fig. 6-2-24.

2-3-20. DC Motor (Capstan), Conversion Gear, Relay Gear

1. Removal procedure

1) Remove the three screws (M1.4 × 2) ①.
2) Remove DC motor (capstan). Remove belt from the pulley of conversion gear.
3) Remove conversion gear.
4) Remove relay gear.

2. Attachment procedure

1) Coat relay gear shaft and conversion gear shaft with grease (1/8 drop). (Amount of grease must be strictly controlled.)
2) With the larger gear of the relay gear positioned down, attach the relay gear to the relay gear shaft.
3) With the pulley side of the conversion gear positioned up, engage the conversion gear teeth with the relay gear teeth, and install them.
4) Before installing the DC motor (capstan (including belt)), check that belt is not twisted. Hook a belt on the pulley block of conversion gear. Align three shafts with corresponding holes. At this moment, confirm that belt does not override on the shaft.
5) Install DC motor (capstan) with three screws (M1.4 × 2) ① in the order of Ⓐ, Ⓑ and Ⓒ.
   Ⓐ, Ⓑ, Ⓒ tightening torque
   Ⓐ tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
   Ⓑ and Ⓒ tightening torque: 0.038 ± 0.01 N•m (0.4 kg•cm)

Note: Be careful that gears and belts are not damaged or dust is not attached. Be careful also not to splash grease.

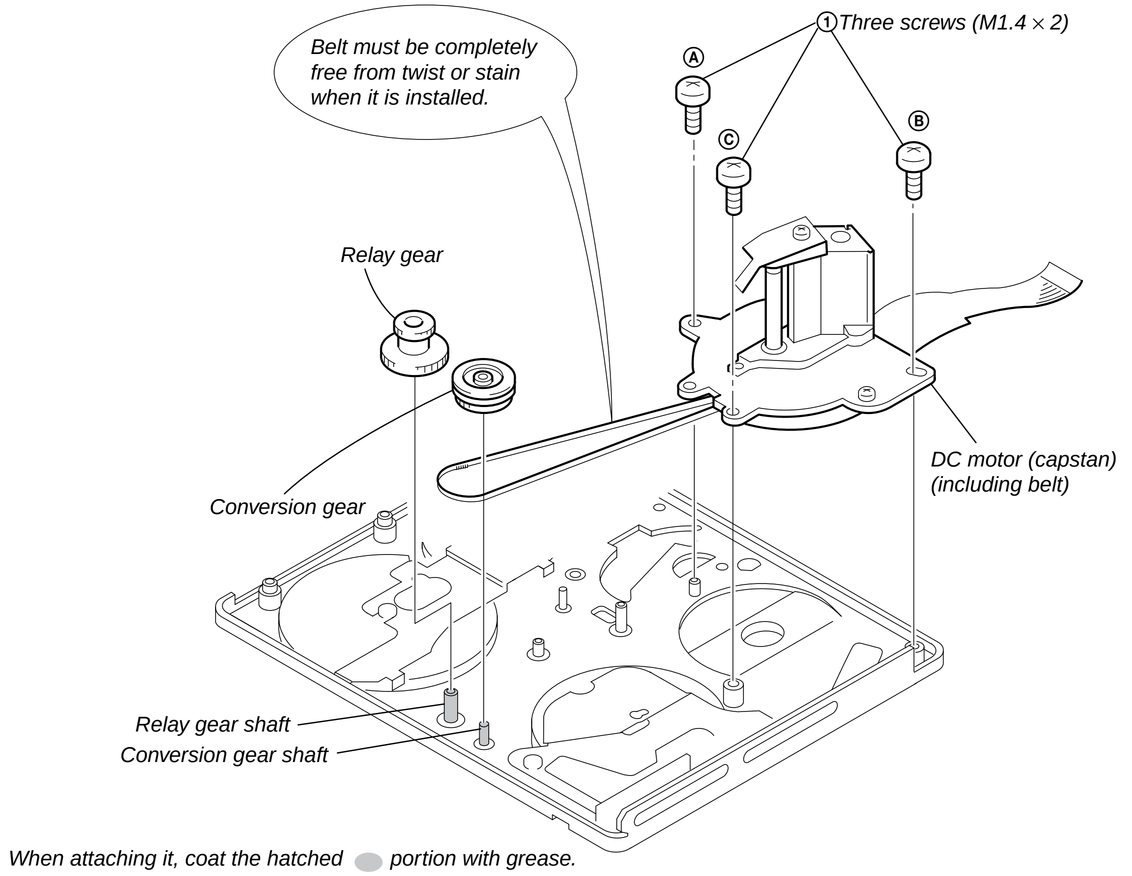

①Three screws (M1.4 × 2)
Belt must be completely free from twist or stain when it is installed.
Ⓐ
Ⓒ
Ⓑ
Relay gear
DC motor (capstan) (including belt)
Conversion gear
Relay gear shaft
Conversion gear shaft
When attaching it, coat the hatched ● portion with grease.

Fig. 6-2-25.

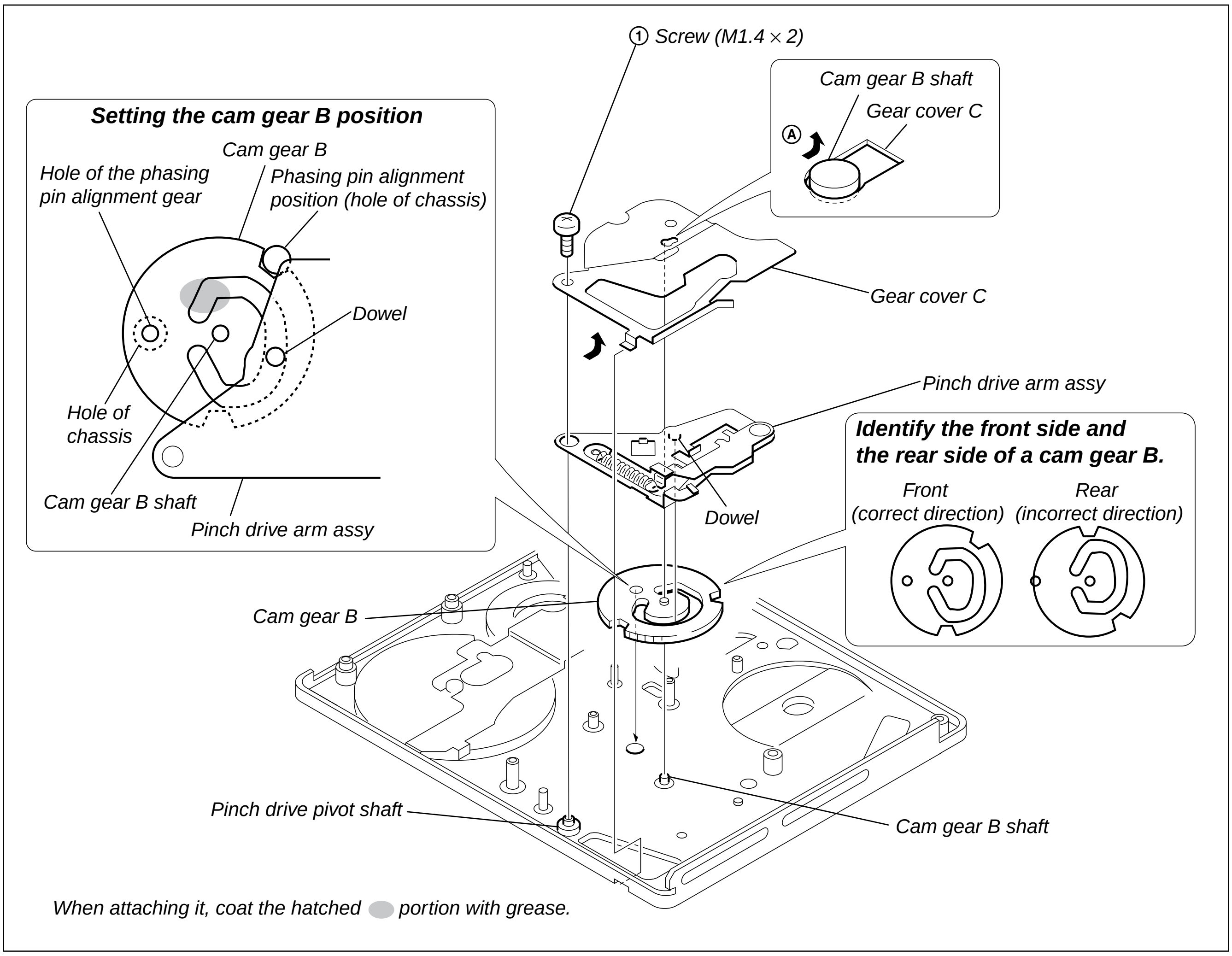
2-3-21. Gear Cover C, Pinch Driving Arm Assy, Cam Gear B

1. Removal procedure

1) Remove the screw (M1.4 × 2) ①.
2) Move the key slot of the gear cover C in the direction of the arrow Ⓐ and remove the gear cover C.
3) Remove the pinch drive arm assy.
4) Remove the cam gear B.

2. Attachment procedure

1) Identify the front side and the rear side of a cam gear B. Align the cam gear B shaft, the gear phasing hole and the LS chassis hole. Then attach the cam bear B. coat groove of a cam gear with grease (1/2 drop).
2) Align the pinch drive arm assy with the pinch drive pivot shaft. While aligning dowel with the cam groove of the cam gear B, insert the pinch drive arm assy.
3) Insert the “one-step bent portion” of gear cover C into notch of the chassis, insert the cam gear B shaft into the key hole of the gear cover. C.
4) Insert the gear cover C into the pinch drive pivot shaft and fix it with the screw (M1.4 × 2) ①. After tightening the screw (M1.4 × 2) ①, move the gear cover C in order to confirm that there is a little play.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)


① Screw (M1.4 × 2)
Cam gear B shaft
Gear cover C
Ⓐ
Setting the cam gear B position
Cam gear B
Hole of the phasing pin alignment gear
Phasing pin alignment position (hole of chassis)
Dowel
Hole of chassis
Cam gear B shaft
Pinch drive arm assy
Gear cover C
Pinch drive arm assy
Identify the front side and the rear side of a cam gear B.
Front (correct direction)
Rear (incorrect direction)
Dowel
Cam gear B
Pinch drive pivot shaft
Cam gear B shaft

When attaching it, coat the hatched ● portion with grease.

Fig. 6-2-26.

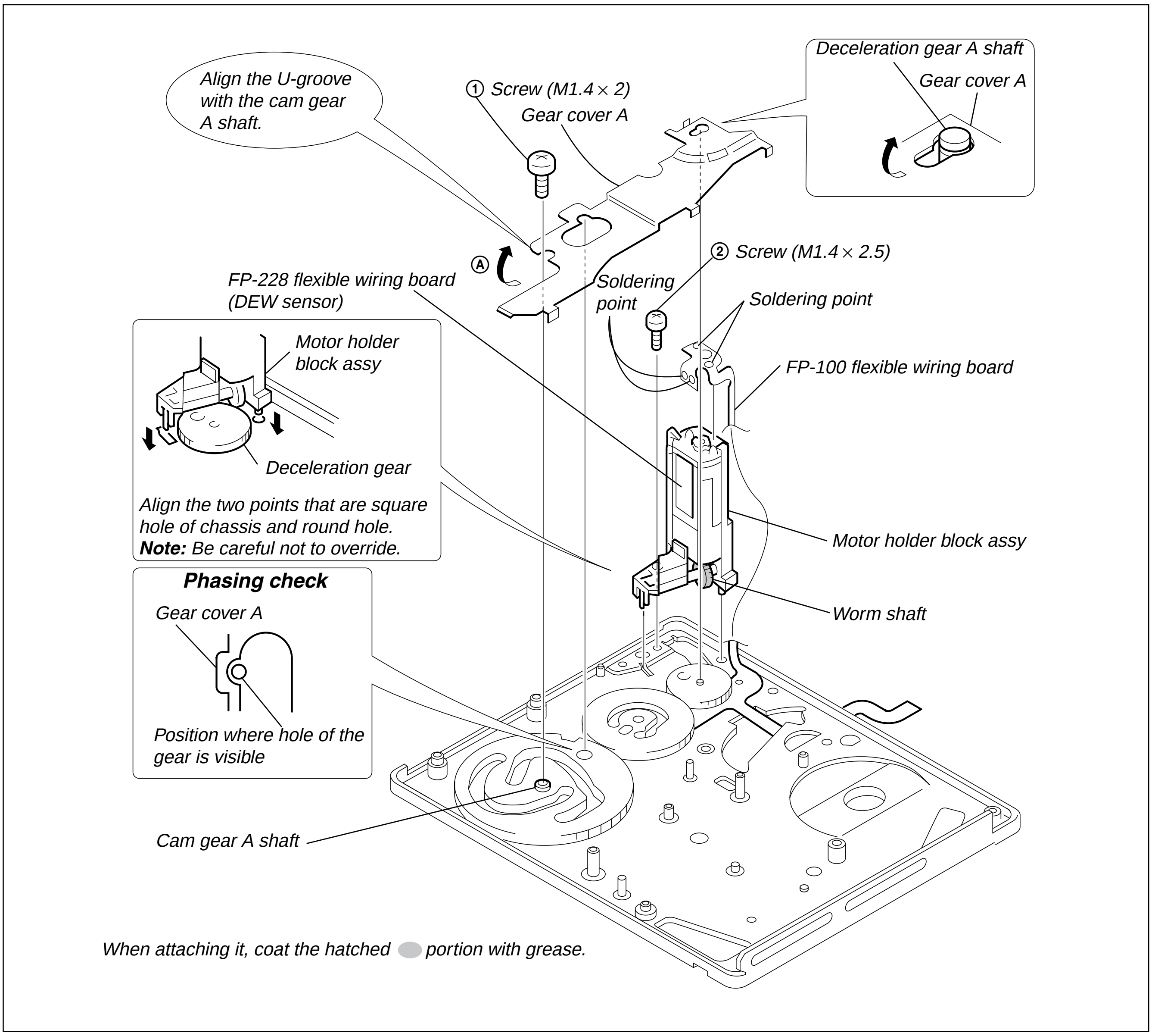
2-3-22. Gear Cover A, FP-100 Flexible Wiring Board

1. Removal procedure

1) Remove the screw (M1.4 × 2) ①.
2) Remove the gear cover A in the direction of the arrow Ⓐ.
3) Remove the screw (M1.4 × 2.5) ②.
4) Remove soldering from the motor terminal and FP-228 flexible wiring board (DEW sensor) that are used to connect the FP-100 flexible wiring board with the motor holder block assy.
5) Remove the motor holder block assy.

2. Attachment procedure

1) Align the motor holder block assy position with the chassis square hole and round hole. The press the motor holder block assy with finger.
   Note: Coat the worm shaft with grease (1/2 size of a rice gain).
2) Fix the motor holder block assy with the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
3) Install the gear cover A as follows: Hook the shaft with the key slot and align the U-groove with the cam gear A shaft. Confirm at this time that there is a play.
4) Attach the gear cover A to the cam gear A shaft and fix them with the screw (M1.4 × 2) ①.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
5) Connect the FP-100 flexible wiring board with the motor holder block assy (motor terminal and FP-228 flexible wiring board (DEW sensor)) by soldering.
   Note: Do not touch the DEW sensor.


Align the U-groove with the cam gear A shaft.
① Screw (M1.4 × 2)
Gear cover A
Deceleration gear A shaft
Gear cover A
Ⓐ
② Screw (M1.4 × 2.5)
FP-228 flexible wiring board (DEW sensor)
Soldering point
Soldering point
FP-100 flexible wiring board
Motor holder block assy
Deceleration gear
Align the two points that are square hole of chassis and round hole.
Note: Be careful not to override.
Motor holder block assy
Phasing check
Gear cover A
Worm shaft
Position where hole of the gear is visible
Cam gear A shaft

When attaching it, coat the hatched ● portion with grease.

Fig. 6-2-27.

2-3-23. Deceleration Gear, Mode Gear Assy, FP-100 Flexible Wiring Board, Cam Gear A

1. Removal procedure

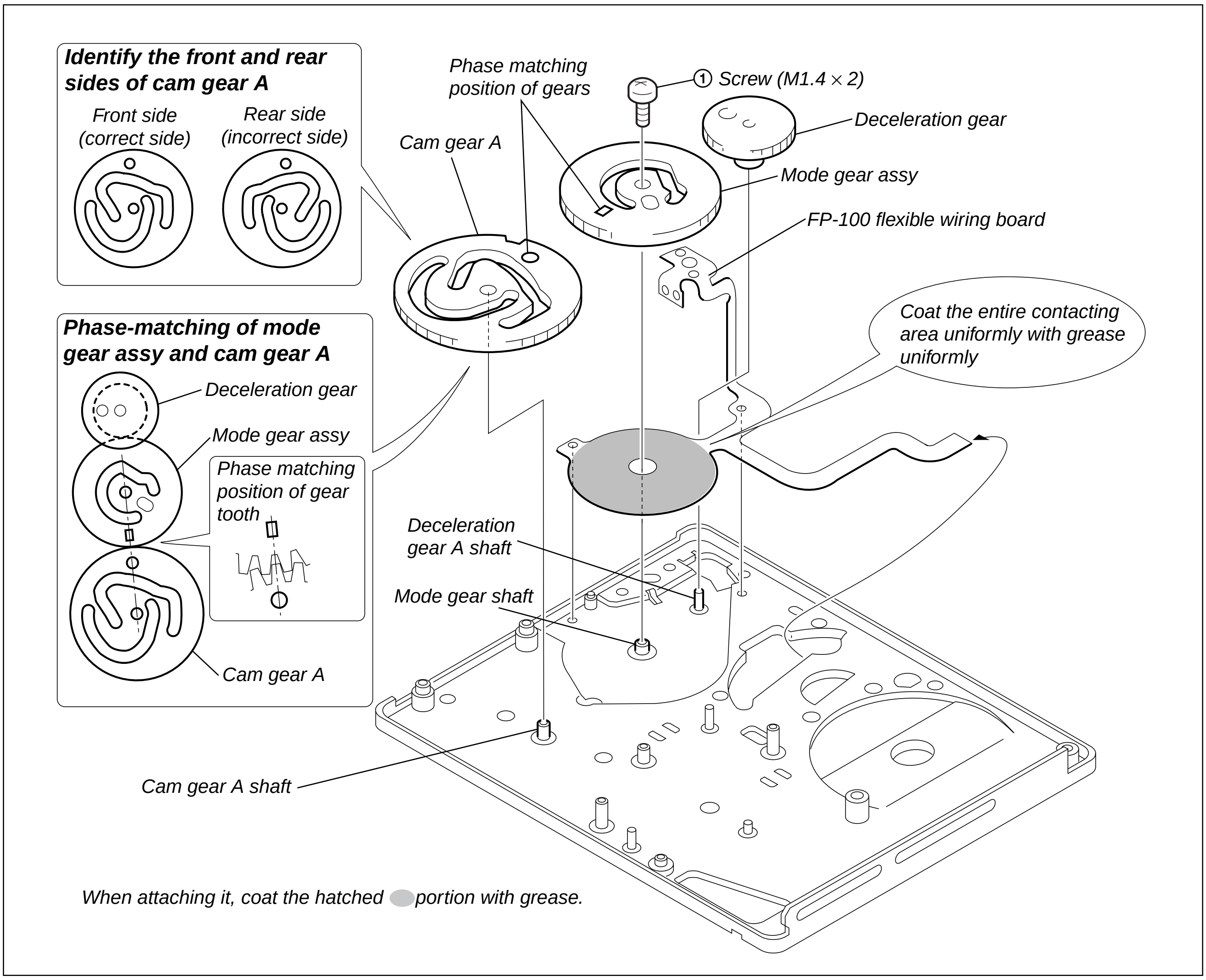
1) Remove the deceleration gear.
2) Remove the screw (M1.4 × 2) ①.
3) Remove the cam gear A.
4) Remove the mode gear assy.
5) Remove the FP-100 flexible wiring board.

Note 1: Do not touch the foil pattern area of the FP-100 flexible wiring board. Any foreign materials must not be adhered.
Note 2: Do not remove the mode gear assy unnecessarily.

2. Attachment procedure

1) Install the FP-100 flexible wiring board to the mechanism chassis. Confirm that flexible wring board is not stained, broken, bent or damaged.
2) Coat the entire contact points of the mode pattern area of the FP-100 flexible wiring board with the contact-point grease (equivalent to 1.5 drops). (Any foreign materials must not be mixed in the contact-point grease.)
3) Attach the mode gear assy to the mode gear shaft.
4) Install the deceleration gear as follows: Position the deceleration gear with its small gear down, and engage the small gear tooth with the mode gear tooth. Rotate the gear tooth until the phasing marking of the mode gear assy arrives at the phasing position of the cam gear A.
5) Identify the front and rear sides of the cam gear A. Confirm that the marking of the cam gear A and that of the mode gear assy agree.
6) Attach the screw (M1.4 × 2) ① of the mode gear assy.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
7) Connect the FP-100 flexible wiring board to the motor holder block assy by soldering in accordance with section 2-3-22 [2. Attachment procedure] step 7.

Note 1: If the FP-100 flexible wiring board is removed, replace it with a new FP-100 board, and do not use the removed FP-100 flexible wiring board.
Note 2: Cautions when attaching the FP-100 flexible wiring board:
① It must not override on the mode gear shaft.
② It must be aligned with the position setting hole.
③ It must no float, must not have stain or must not be broken.
④ Never touch the foil pattern area with hand.


Identify the front and rear sides of cam gear A
Front side (correct side)
Rear side (incorrect side)
Phase-matching of mode gear assy and cam gear A
Deceleration gear
Mode gear assy
Phase matching position of gear tooth
Cam gear A
Phase matching position of gears
Cam gear A
① Screw (M1.4 × 2)
Deceleration gear
Mode gear assy
FP-100 flexible wiring board
Coat the entire contacting area uniformly with grease uniformly
Deceleration gear A shaft
Mode gear shaft
Cam gear A shaft

When attaching it, coat the hatched ● portion with grease.

Fig. 6-2-28.

2-4. Tape Path Adjustment

2-4-1. Adjustment Preparation

1) Clean the tape running surface (tape guides, drum, capstan, pinch roller) referring to Service Manual.
2) Connect adjustment remote commander (Ref. No. J-5) to the LANC terminal of the machine. Set the HOLD switch to ON.
3) Connect an oscilloscope to the VC-318 board CN1008 via the CPC-8 jig (Ref. No. J-8).
   Scope channel 1: VC-318 board CN1008 pin ⑳ (Note)
   External trigger: VC-318 board CN1008 pin ⑰
   Note: Connect CN1008 pin ⑳ and pin ⑲ (GND) with 75 Ω resistor (1-247-804-11).
4) Play the tracking alignment tape (XH2-1A1)(Ref. No. J-18) back.
5) Select page: 0, address: 10 and set data: 00.
6) Select page: 3, address: 33 and set data: 08.
7) Select page: 3, address: 26 and set data: 31.
8) Confirm that RF waveform on scope is normal in both entrance side and exit side. (Refer to Fig. 6-2-30 Ⓐ).
   If RF waveform is not normal in entrance side and exit side, perform the adjustment of section 4-2. and later. (Refer to Fig. 6-2-30 Ⓑ and Ⓒ).
9) When the required conditions of step 8) are satisfied and adjustment/check are complete, perform [Required work upon completion of adjustment] as described below.

[Required work upon completion of adjustment]

1) Connect adjustment remote commander (Ref. No. J-5) to the LANC terminal of the machine. Set the HOLD switch to ON.
2) Select page: 0, address: 10 and set data: 00.
3) Select page: 3, address: 26 and set data: 00.
4) Select page: 3, address: 33 and set data: 00.

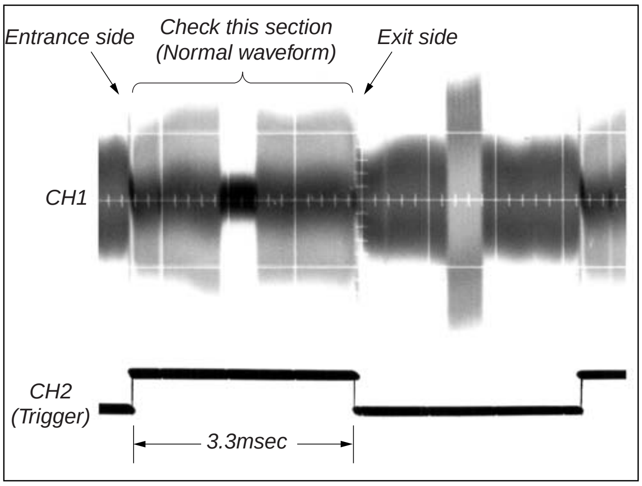


Fig. 6-2-29.

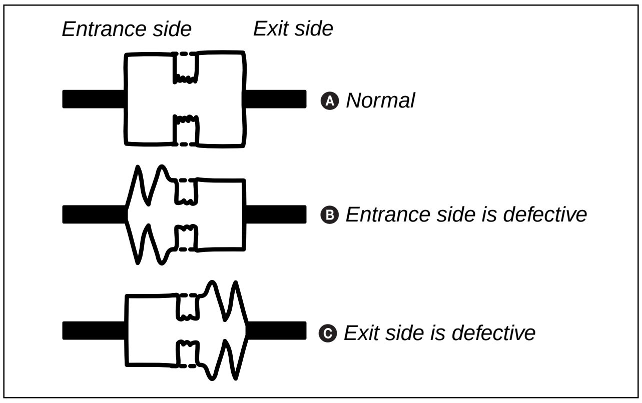

Entrance side
Exit side
Ⓐ Normal
Ⓑ Entrance side is defective
Ⓒ Exit side is defective

Fig. 6-2-30.

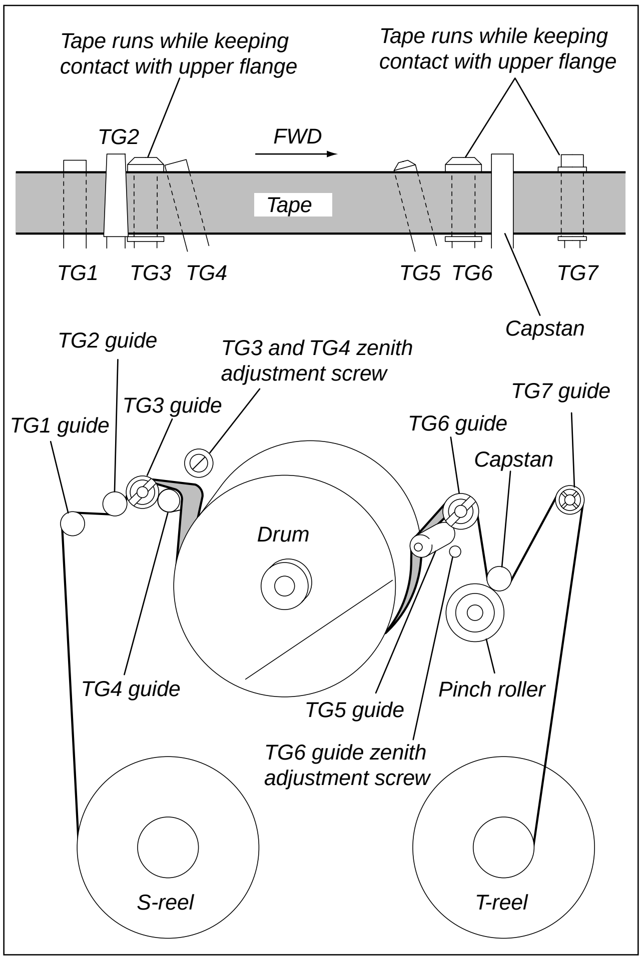

Tape runs while keeping contact with upper flange
Tape runs while keeping contact with upper flange
TG2
FWD
Tape
TG1
TG3
TG4
TG5
TG6
TG7
Capstan
TG2 guide
TG3 and TG4 zenith adjustment screw
TG7 guide
TG3 guide
TG1 guide
TG6 guide
Capstan
Drum
TG4 guide
TG5 guide
Pinch roller
TG6 guide zenith adjustment screw
S-reel
T-reel

Fig. 6-2-31.

2-4-2. Tracking Adjustment

1) Play the tracking alignment tape (XH2-1A1) (Ref. No. J-18) back.
2) Adjust TG3 guide until the envelope of entrance side waveform becomes flat.
3) Adjust TG6 guide until the envelope of exit side waveform becomes flat.

Note: Do not touch or adjust TG3 and TG4 guide zenith adjustment screw.

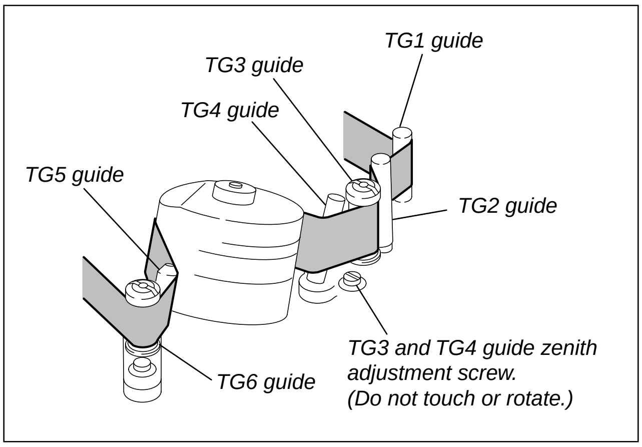

TG1 guide
TG3 guide
TG4 guide
TG5 guide
TG2 guide
TG3 and TG4 guide zenith adjustment screw. (Do not touch or rotate.)
TG6 guide

Fig. 6-2-32.

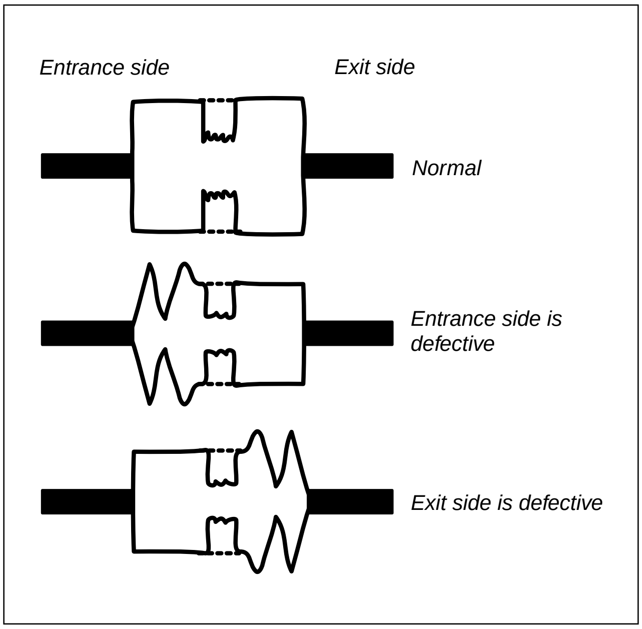

Entrance side
Exit side
Normal
Entrance side is defective
Exit side is defective

Fig. 6-2-33.

2-4-3. TG3 Guide Adjustment

1) Play the tracking alignment tape (XH2-1A1) (Ref. No. J-18) back.
2) Run the tape in FWD mode. Confirm that tape runs while keeping contact with upper flange of TG3. If any clearance is found between top flange and tape, rotate the adjustment nut in clockwise direction until tape runs while keeping contact with upper flange of TG3.

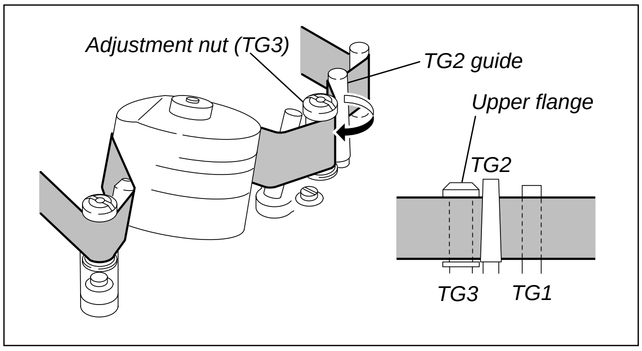

Adjustment nut (TG3)
TG2 guide
Upper flange
TG2
TG3
TG1

Fig. 6-2-34.

When tape runs while keeping contact with upper flange of TG3, confirm that the tracking waveform does not change. If the tracking waveform has poor amplitude at the entrance side as shown, perform tracking adjustment of entrance side.

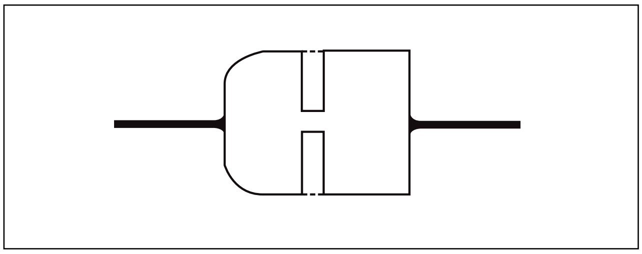


Fig. 6-2-35.

After entrance side is adjusted, establish the RVS mode. Make an attempt to rotate the TG3 adjustment nut by 180 degrees in the counter-clockwise direction in order to confirm that tape rises upward. Upon confirmation, return the TG3 adjustment nut to the original position.

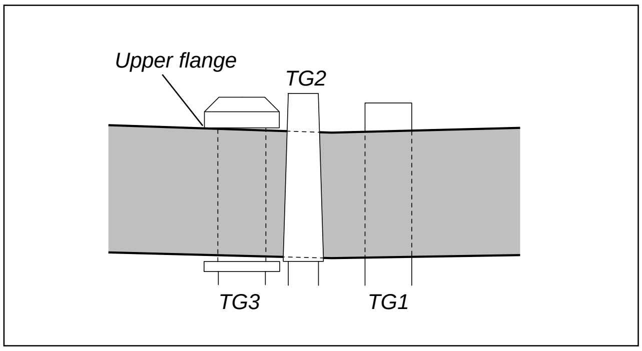

Upper flange
TG2
TG3
TG1

Fig. 6-2-36.

2-4-4. TG7 Guide Adjustment

1) Establish the FWD mode. Confirm that tape slack does not occur in between capstan and TG7 guide. (Specification value: 0.5 mm or less of tape slack) If any tape slack occurs, rotate the tG7 guide to remove the tape slack.
2) Establish the REV mode. Confirm that RF waveform at exit side is normal. (Refer to Fig. 6-2-38.)
3) If the RF waveform at exit side has abnormality, rotate the TG7 nut by 90 degrees in counter-clockwise direction. Then perform steps 1) and 2) again.

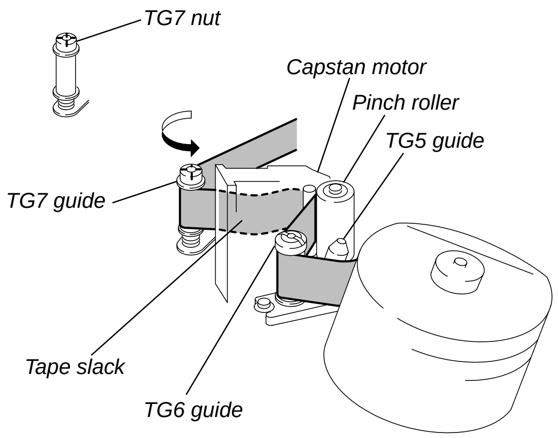


Fig. 6-2-37.

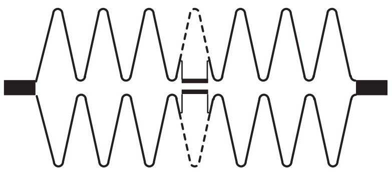


Fig. 6-2-38.

2-4-5. Check upon Completion of Adjustment

1. Tracking Check

1) Play the tracking alignment tape (XH2-1A1) (Ref. No. J-18) back.
2) Confirm that RF waveform has amplitude of about 0.65A (65%) in the FWD mode taking the waveform amplitude during CUE/REV mode as A (= 100%). (Refer to Fig. 6-2-39.)

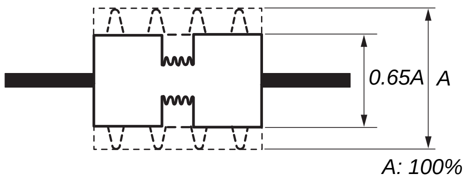
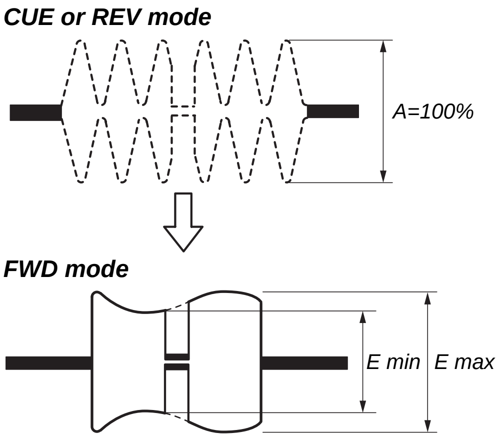


Fig. 6-2-39.

3) Confirm that difference between the minimum amplitude (E.min) and the maximum amplitude (E.max) of RF waveform in the FWD mode is 30% or more taking the waveform amplitude during CUE (or REV) mode as A (= 100%).


CUE or REV mode

FWD mode

E.min: Minimum amplitude
E.max: Maximum amplitude

(E.min – E.min) ≦ 30% or (3/10 × A)

Fig. 6-2-40.

4) Confirm that the RF waveform does not have excessive fluctuation.

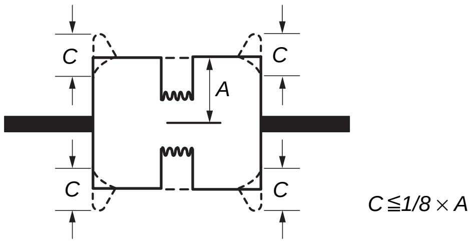


Fig. 6-2-41.

2. CUE/REV Check

1) Play the tracking alignment tape (XH2-1A1) (Ref. No. J-18) back and enter the REV mode. Confirm that pitches between peaks of RF waveform are equally spaced. (Refer to Fig. 6-2-42.)
   If pitches between peaks of RF waveform are not equal, perform sections "2-4-2. Tracking Adjustment" and "2-4-4. TG7 Guide Adjustment".
2) Enter the CUE mode. Confirm that pitches between peaks of RF waveform are equally spaced. (Refer to Fig. 6-2-42.) If pitches between peaks of RF waveform are not equal, perform sections "2-4-2. Tracking Adjustment".

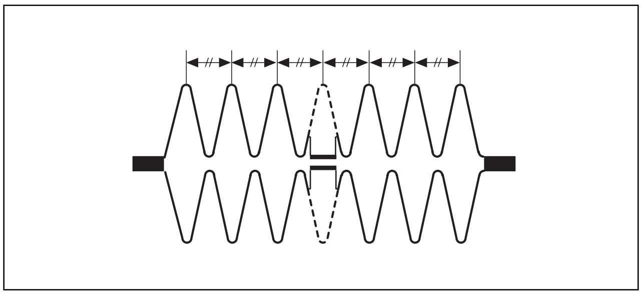


Fig. 6-2-42.

3. Rise-up Check

1) Play the tracking alignment tape (XH2-1A1) (Ref. No. J-18) back.
2) Establish the FWD playback mode. Confirm that RF waveform rises up in two seconds or less. Confirm also at this time that tape slack does not occur at around pinch roller.
3) Run a tape in CUE/REV mode and FF/REW mode. After that play the tape back and confirm that RF waveform rises up in two seconds or less.
4) Repeat steps 2) and 3) repeatedly.

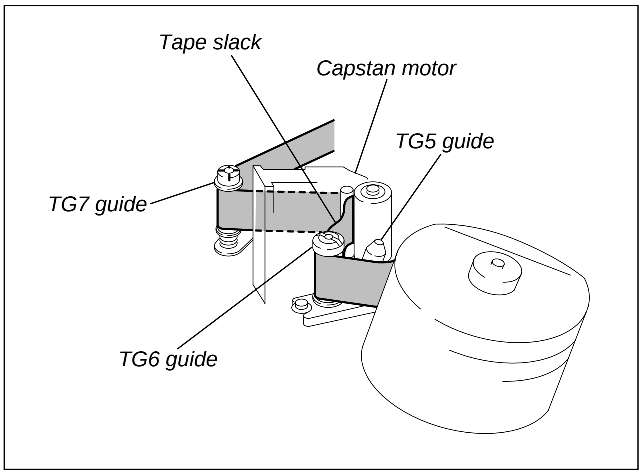


Fig. 6-2-43.

4. Tape Run Check

Run a tape in CUE/REV mode. Confirm to see that major tape curl does not occur at TG2 lower taper, TG3 upper flange, TG6 upper flange and TG7 upper flange during CUE/REV mode.

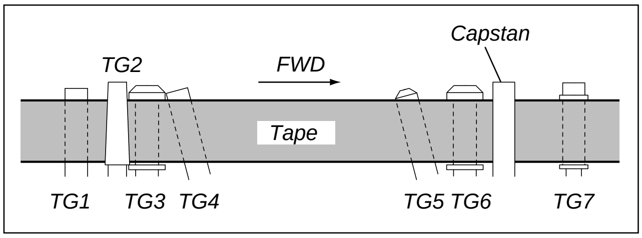


Fig. 6-2-44.

6-3. VIDEO SECTION ADJUSTMENT

NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment to Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tapes
    - Tracking standard (XH2-1A1)
      Parts code: 8-967-999-03
    - SW/OL standard (XH2-3)
      Parts code: 8-967-997-11
    - Audio operation check for NTSC (XH5-3)
      Parts code: 8-967-997-51
    - System operation check for NTSC (XH5-5)
      Parts code: 8-967-997-61
    - Audio operation check for PAL (XH5-3P)
      Parts code: 8-967-997-55
    - System operation check for PAL (XH5-5P)
      Parts code: 8-967-997-66
12) Adjustment remote commander (J-6082-053-B)
13) CPC-8 jig (J-6082-388-A)

3-1-2. Precautions on Adjustment

Note1: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1) The adjustments of this unit are performed in the VTR mode or camera mode.
   To set to the VTR mode, set the power switch to "VCR" (or "PLAYER") or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note2).
   To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note3).
   After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note5)
2) Cabinet (R) (CK-134 board, LCD block) need not be connected. But removing the cabinet (R) (removing the CK-134 board CN5203) means removing the lithium 3V power supply (CK-134 board, BT5201) , data such as date, time, user-set menus will be lost. After completing adjustments, reset these data.
   But, the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the cabinet (R) has been removed. (Refer to "6-4.Service Mode" for the data on the history use and the self-diagnosis data.)
   To remove the cabinet (R), disconnect the following connector.
   CK-134 board CN5203 (60P, 0.5mm)
3) The front panel block (MA-425 board, focus ring, microphone unit)) need not be connected except for the audio system adjustments. To remove it, disconnect the following connectors.
   MA-425 board CN5906 (33P, 0.5mm)
   MA-425 board CN5904 (8P, 0.5mm)
4) The EVF block (LB-089 board) and the intelligent accessory shoe are need not be connected. To remove it, disconnect the following connectors.
   DB-016 board CN7211 (21P, 0.3mm)
   DB-016 board CN7205 (27P, 0.3mm)
5) The memory stick connector (FP-503 flexible) is need not be connected. To remove it, disconnect the following connector.
   VC-318 board CN1009 (10P, 0.5mm)
6) The control switch block (CF-1870) is need not be connected. To remove it, disconnect the following connector.
   DB-016 board CN7200 (8P, 0.5mm)
7) By setting the "Forced VTR Power ON mode", the video section can be operate even if the control switch block (PS-1870) has been removed. When removing it, disconnect the following connector.
   DB-016 board CN7201 (6P, 0.5mm)
9) The lens block (CD-389 board) is need not be connected. To remove it, disconnect the following connectors.
   VC-318 board CN1201 (60P, 0.5mm)
   DB-016 board CN1501 (10P, 0.5mm)
   DB-016 board CN1004 (39P, 0.3mm)

Note2: Setting the "Forced VTR Power ON" mode (VTR mode)

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the VTR power to be turned on with the control switch block (PS-1870 block) removed.
   After completing adjustments, be sure to exit the "Forced Power ON mode".

Note3: Setting the "Forced Camera Power ON" mode (Camera mode)

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the camera power to be turned on with the control switch block (PS-1870 block) removed.
   After completing adjustments, be sure to exit the "Forced Power ON mode".

Note4: Setting the "Forced Memory Power ON" mode (Memory mode)

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 05, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the memory power to be turned on with the control switch block (PS-1870 block) removed.
   After completing adjustments, be sure to exit the "Forced Power ON mode".

Note5: Exiting the "Forced Power ON" mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

3-1-3. HOW TO ENTER RECORD MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, and set data: 0C, and press the PAUSE button.
   (The mechanism enters the record mode automatically.)

Note: The function buttons becomes inoperable.

5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

3-1-4. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE

1) Connect the adjustment remote commander to the LANC jack.
2) Turn the HOLD switch of the adjustment remote commander to the ON position.
3) Close the cassette compartment without the cassette.
4) Select page: 3, address: 01, and set data: 0B, and press the PAUSE button.
   (The mechanism enters the playback mode automatically.)

Note: The function buttons becomes inoperable.

5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

3-1-5. Adjustment Connectors

Some of the adjustment points of the video section are concentrated at VC-318 board CN1008. Connect the measuring instruments via the CPC-8 jig (J-6082-388-A). The following table lists the pin numbers and signal names of CN1008.

Pin No.	Signal Name	Pin No.	Signal Name
1	EVF VB	2	D 2.8V
3	EVF LED DA	4	EVF VG
5	EVF VCO	6	EVF VR
7	MD2	8	XCS MC FLASH
9	XINIT	10	XCS ST IMAGE IC
11	DRUM ON	12	FRRP
13	REC CRRT1	14	REC CRRT0
15	REG GND	16	HI XRESET
17	SWP	18	RF IN
19	GND	20	RF MON

Table 6-3-1.

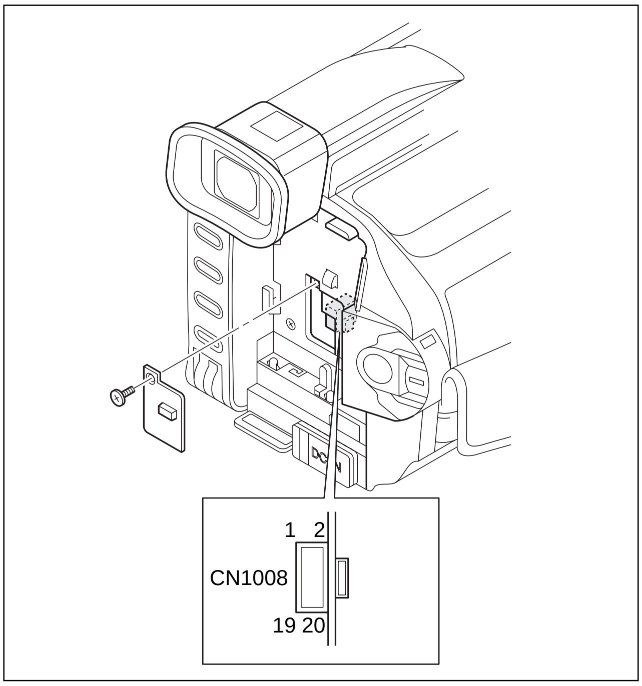

1 2
CN1008
19 20
DC IN

Fig. 6-3-1.

3-1-6. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 6-3-2., and perform the adjustments.

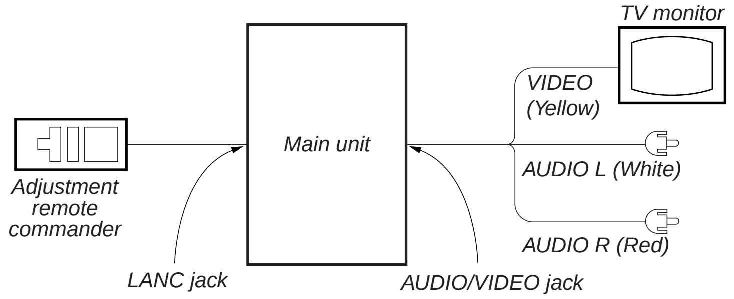

TV monitor
VIDEO
(Yellow)
Main unit
AUDIO L (White)
AUDIO R (Red)
Adjustment
remote
commander
LANC jack
AUDIO/VIDEO jack

Fig. 6-3-2.

3-1-7. Alignment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1A1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check

Fig. 6-3-3. shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75Ω)

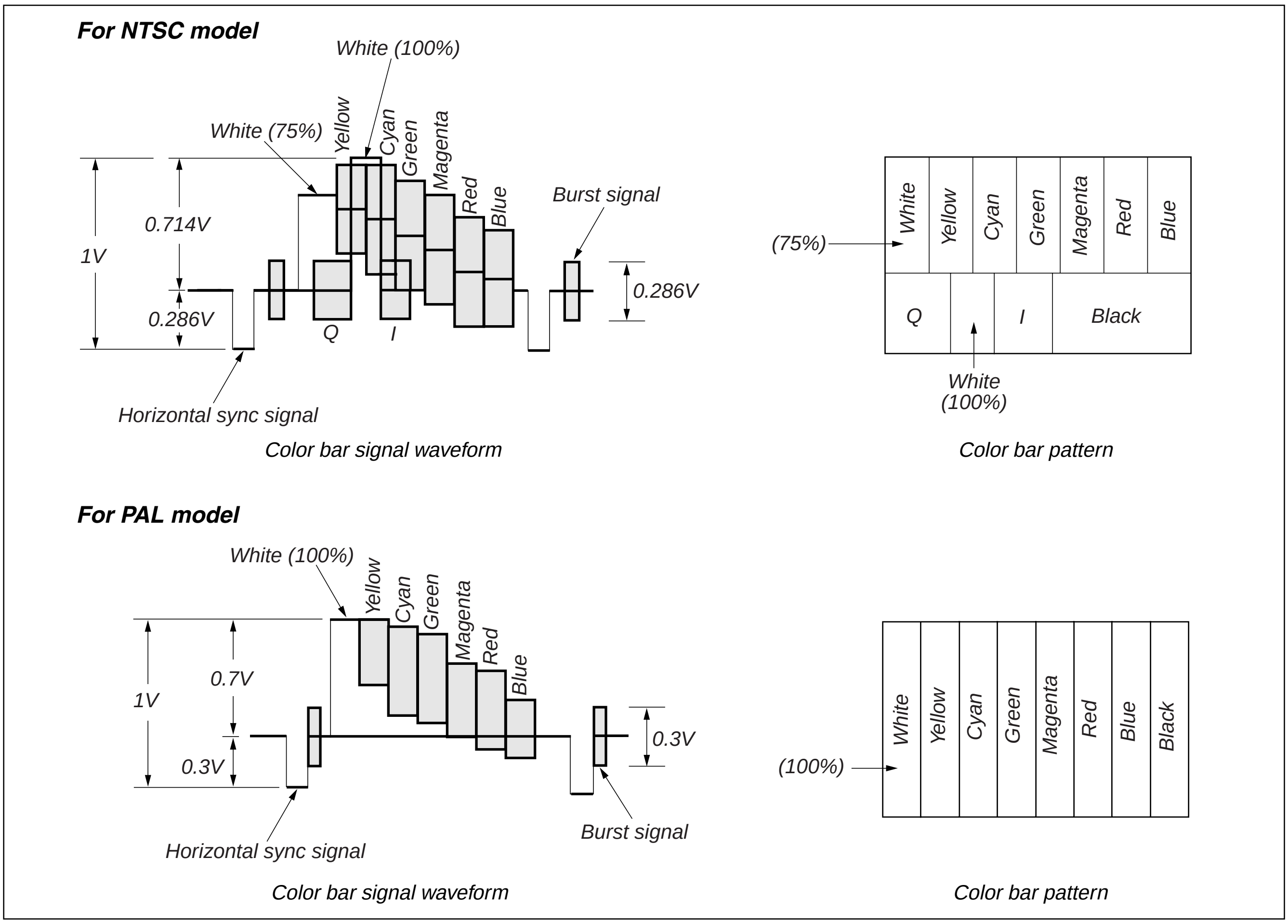

For NTSC model
White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
1V
0.714V
0.286V
Q
I
0.286V
Horizontal sync signal
Color bar signal waveform
(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
I
Black
White
(100%)
Color bar pattern
For PAL model
White (100%)
Yellow
Cyan
Green
Magenta
Red
Blue
1V
0.7V
0.3V
0.3V
Horizontal sync signal
Burst signal
Color bar signal waveform
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black
Color bar pattern

Fig. 6-3-3. Color bar signal of alignment tapes

3-1-8. Input/Output Level and Impedance

Video input/output
  Special stereo mini jack
  Video signal: 1 Vp-p, 75Ω unbalanced, sync negative
S video input/output
  4-pin mini DIN
  Luminance signal: 1 Vp-p, 75Ω unbalanced, sync negative
  Chrominance signal: 0.286 Vp-p, 75Ω unbalanced (NTSC)
  : 0.300 Vp-p, 75Ω unbalanced (PAL)

Audio input/output
  Special stereo mini jack
  Input level: 327mV
  Input impedance: More than 47kΩ
  Output level: 327mV (at load impedance 47kΩ)
  Output impedance: Below 2.2kΩ

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F Page Data

If the 8, A, B, C, D, E, F, 1B, 1E, 1F page data is erased due to some reason, perform “1-2. INITIALIZATION OF PAGE DATA” of “5-1. CAMERA SECTION ADJUSTMENT”

Note: When reading or writing the 1B, 1E, 1F page data, select page: 0, address: 10, and set data: 01, then select B, E or F page. The 1B. 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to “00”.

2. Touch Panel Adjustment

Adjust the calibration of the touch panel.

Mode	VTR stop
Signal	Arbitrary
Adjustment Page	A
Adjustment Address	90 to 93

Note1: Perform this adjustment with observing the LCD screen from the front.
Note2: The data of page: 0, address: 10 must be “00”.

Adjusting method:

1) Select page: 7, address: 05, and set data: 01.
2) Using a stylus etc., push the center of “X” indicated in the part A.
3) Using a stylus etc., push the center of “X” indicated in the part B.
4) Using a stylus etc., push the center of “X” indicated in the part C.
5) Check that the data of page:7, address:05 is “00”.

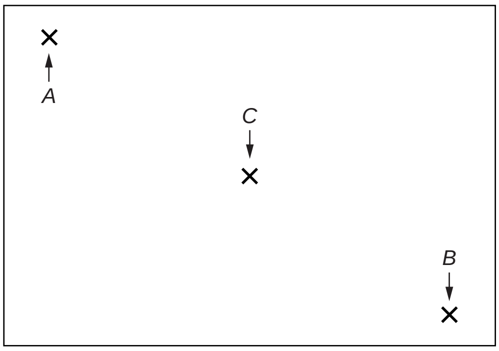


Fig. 6-3-4.

3. Serial No. Input

Note: Before performing the adjustments, check the data of page: 0, address: 10 is “00”. If not, set data: 00 to this address.

3-1. Company ID Input

Write the company ID in the EEPROM (nonvolatile memory).

Page	8
Address	8C, 8D, 8E, 8F, 90

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Input the following data to page: 8, addresses: 8C to 90.

   Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
8C	08
8D	00
8E	46
8F	01
90	02

3) Select page: 0, address: 01, and set data: 00.

3-2. Serial No. Input

Write the serial No. and model code in the EEPROM (nonvolatile memory). Convert the serial No. on the name plate from decimal to hexadecimal, and write in the EEPROM.

Page	8
Address	91, 92, 93

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Read the serial No. on the name plate, and take it as D_1.

   Example: If the serial No. is 77881.

   $D_1 = 77881$

   Note: Use six digits of the low rank when a serial No. is more than seven digits.
3) Obtain D_2 and H_1 corresponding to D_1 from Table 6-3-2.

   Example: If D_1 is “77881”.

   $D_2 = D_1 - 65536 = 12345$

   $H_1 = \text{FE}$

D_1 (Decimal)	D_2 (Decimal)	H_1 (Hexadecimal) (Service model code)
000001 to 065535	D_1	FE
065536 to 131071	D_1–65536	FE
131072 to 196607	D_1–131072	FE

Table 6-3-2.

4) Input H_1 to page: 8, address: 91. (Model code input)

   Example: If H_1 is “FE”.

   Select page: 8, address: 91, set data: FE, and press the PAUSE button.
5) Obtain the maximum decimal not exceeding D_2 from Table 6-3-3, and take this as D_3.

   Example: If D_2 is “12345”.

   $D_3 = 12288$
6) Obtain the hexadecimal corresponding to D_3 from Table 6-3-3, and take this as H_3.

   Example: If D_3 is “12288”.

   $H_3 = 3000$
7) Obtain the difference D_4 between D_2 and D_3. (Decimal calculation, $0 \leqq D_4 \leqq 255$)

   $D_4 = D_2 - D_3$

   Example: If D_2 is “12345” and D_3 is “12288”.

   $D_4 = 12345 - 12288 = 57$
8) Convert D_4 to hexadecimal, and take this as H_4.

   (Refer to “Hexadecimal-decimal conversion table” in “6-4. Service Mode”.)

   Example: If D_4 is “57”.

   $H_4 = 39$
9) Input the upper 2 digits of H_3 to page: 8, address: 92.

   Example: If H_3 is “3000”.

   Select page: 8, address: 92, set data: 30, and press the PAUSE button.
10) Input H_4 to page: 8, address: 93.

    Example: If H_4 is “39”.

    Select page: 8, address: 93, set data: 39, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)	Decimal (D_3)	Hexadecimal (H_3)
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Table 6-3-3.

3-3. SERVO AND RF SYSTEM ADJUSTMENT

Before perform the servo and RF system adjustments, check that the specified value of “66MHz/54MHz Origin Oscillation Adjustment” of “CAMERA SYSTEM ADJUSTMENT” is satisfied. And check that the data of page: 0, address: 10 is “00”. If not, set data: 00 to this address.

Adjusting Procedure:

1. CAP FG duty adjustment
2. PLL f_0 & LPF f_0 pre-adjustment
3. Switching position adjustment
4. AGC center level and APC & AEQ adjustment
5. PLL f_0 & LPF f_0 fine adjustment

1. Cap FG Duty Adjustment (VC-318 Board) RadarW

Set the Cap FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur.

Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	16
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting a cassette.
2	0	01	01	Set the data.
3	3	01	1B	Set the data, and press PAUSE button.
4	3	02		Check that the data changes in the following order. “1B” → “2B” → “00”
5	3	03		Check that the data is “00”. (Note2)
6	0	01	00	Set the data.

Note2: If the data is “01”, adjustment has errors or the mechanism deck is defective.

2. PLL f_0 & LPF f_0 Pre-Adjustment (VC-318 Board) RadarW

Mode	VTR stop
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	21	DC	Set the data, and press PAUSE button.
3	3	01	30	Set the data, and press PAUSE button.
4	3	02		Check that the data changes to “00” with in 5 sec. (Note2)
5	3	03		Check that the data is “00”. (Note2)
6	0	01	00	Set the data.

Note2: If it isn’t satisfied, select page: C, address: 21, set the following data, and press the PAUSE button, and repeat steps 3 to 5.

	Setting data
When the data of page: C, address: 21 is “DC”.	E0
When the data of page: C, address: 21 is “E0”.	D8
When the data of page: C, address: 21 is “D8”.	E4
When the data of page: C, address: 21 is “E4”	D4

There are errors when it isn’t satisfied even if the above treatment is done.
If bit2, bit3, bit4, bit5 or bit 6 of the data of page: 3, address: 03 is “1”, there are errors. For the error contents, see the following table. (For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.)

Bit value of page: 3, address: 03 data	Error contents
bit 2 = 1 or bit 3 = 1	PLL f_0 fine adjustment is defective
bit 4 = 1 or bit 5 = 1	PLL f_0 adjustment is defective
bit 6 = 1	LPF f_0 adjustment is defective

3. Switching Position Adjustment (VC-318 Board) RadarW

To obtain normal playback waveform output during the playback mode, adjust the switching position.

Mode	VTR playback
Signal	SW/OL reference tape (XH2-3)
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL reference tape and enter the VTR STOP mode.
2	0	01	01	Set the data.
3	C	10	EE	Set the data, and press PAUSE button.
4	3	21		Check that the data is “02”. (Note2)
5	3	01	0D	Set the data, and press PAUSE button.
6	3	02		Check that the data changes to “00”.
7	3	03		Check that the data is “00”. (Note3)
8	0	01	00	Set the data.

Note2: If the data of page: 3, address: 21 is “72”, the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.
If the data of page: 3, address: 21 is “62”, the tape end being played. After rewinding the tape, perform step 5 and higher.

Note3: If bit 0 of the data is “1”, the EVEN channel is defective. If bit 1 is “1”, the ODD channel is defective. Contents of the defect is written into page: C, addresses: 10 and 12. See the following table. (For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.) If bit 3 of the data is “1”, the tape end being played, so rewind the tape and perform the adjustment again.

When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEPROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into EEPROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

4. AGC Center Level and APC & AEQ Adjustment

Note: The data of page: 0, address: 10 must be “00”.

4-1. Preparations before adjustments

Mode	Camera recording
Subject	Arbitrary

Adjusting method:

Order	Page	Address	Data	Procedure
1	7	30	80	Set the data.
2				Record the camera signal for three minutes.

4-2. AGC Center Level Adjustment (VC-318 Board) RadarW

Mode	Playback
Signal	Recorded signal at “Preparations before adjustments”
Measurement Point	Pin ⑳ of CN1008 (RF MON) (Note1) Ext. trigger: Pin ⑰ of CN1008 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	1E
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: Connect a 75Ω resistor between Pin ⑳ and Pin ⑲ (GND) of CN1008.
75Ω resistor (Parts code: 1-247-804-11)

Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at “Preparations before adjustments”
2	0	01	01	Set the data.
3	3	33	08	Set the data.
4				Confirm that the playback RF signal is stable. (Fig. 6-3-5.)
5	3	01	23	Set the data, and press PAUSE button.
6	3	02		Check that the data is “00”.
7	3	03		Check that the data is “00”. (Note2)
8				Perform “APC & AEQ Adjustment”.

Note2: If the data of page: 3, address: 03 is other than “00”, adjustment has errors. (Take an appropriate remedial measures according to the errors referring to the following table.)

Data	Contents of defect
20	Perform re-adjustment. (Note 3)
30	The machine is defective
40	Perform re-adjustment. (Note 3)
50	The machine is defective

Note3: If this data is displayed twice successively, the machine is defective.

4-3. APC & AEQ Adjustment (VC-318 Board) RadarW

Mode	Playback
Signal	Recorded signal at "Preparations before adjustments"
Measurement Point	Pin ⑳ of CN1008 (RF MON) (Note1) Ext. trigger: Pin ⑰ of CN1008 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 2C
Specified Value	Data of page: 3, address: 02 is "00". Data of page: 3, address: 03 is "00".

Note1: Connect a 75Ω resistor between Pin ⑳ and Pin ⑲ (GND) of CN1008.
75Ω resistor (Parts code: 1-247-804-11)

Note2: The "AGC Center Level Adjustment" must have already been completed before starting this adjustment.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at "Preparations before adjustments"
2	0	01	01	Set the data.
3	3	33	08	Set the data.
4				Confirm that the playback RF signal is stable. (Fig. 6-3-5.)
5	3	01	07	Set the data, and press PAUSE button.
6	3	02		Check that the data changes from "07" to "00" in about 30 seconds after pressing PAUSE button.
7	3	03		Check that the data is "00". (Note3)
8				Perform "Processing after Completing Adjustments".

Note3: If the data is other than "00", adjustment has errors. Take an appropriate remedial measures according to the errors referring to the following table.

Data	Contents of defect
20	Perform re-adjustment. (Note 4)
30	The machine is defective
50	Perform re-adjustment. (Note 4)
60	The machine is defective
80	The machine is defective

Note4: If this data is displayed twice successively, the machine is defective.

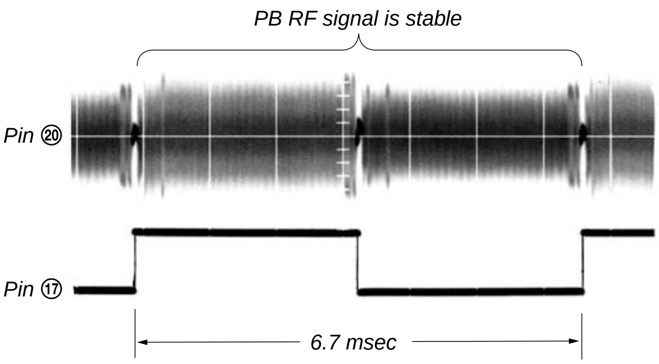


Fig. 6-3-5.

4-4. Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	7	30	00	Set the data.
2	3	33	00	Set the data.
3	0	01	00	Set the data.

5. PLL f_0 & LPF f_0 Fine Adjustment (VC-318 Board) RadarW

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is “00”. Data of page: 3, address: 03 is “00”.

Note1: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	01	30	Set the data, and press PAUSE button.
3	3	02		Check that the data changes to “00” with in 5 sec. (Note2)
4	3	03		Check that the data is “00”. (Note3)
5	0	01	00	Set the data.

Note2: If it isn’t satisfied, there are errors.

Note3: If the data of page: 3, address: 03 is other than “00”, there are errors. For the error contents, see the following table. (For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”.)

Bit value of page: 3, address: 03	Error contents
bit 2 = 1 or bit 3 = 1	PLL f_0 fine adjustment is defective
bit 4 = 1 or bit 5 = 1	PLL f_0 adjustment is defective
bit 6 = 1	LPF f_0 adjustment is defective

3-4. VIDEO SYSTEM ADJUSTMENTS

Note1: Before perform the servo and RF system adjustments, check that the specified value of “66MHz/54MHz Origin Oscillation Adjustment” of “CAMERA SYSTEM ADJUSTMENT” is satisfied.
And check that the data of page: 0, address: 10 is “00”. If not, set data: 00 to this address.

Note2: NTSC model: DSR-PDX10
PAL model: DSR-PDX10P

1. Chroma BPF f_0 Adjustment (DB-016 Board)

Set the center frequency of IC7001 chroma band-pass filter.

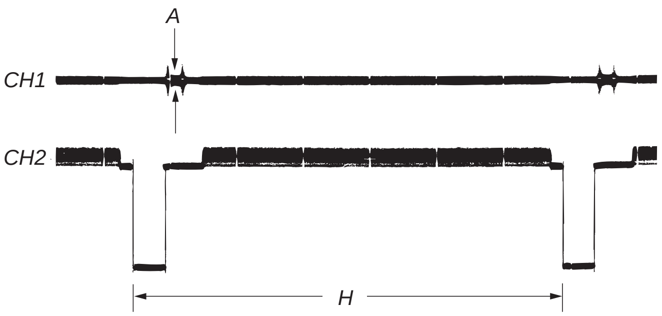
Mode	Camera
Subject	Arbitrary
Measurement Point	CH1: Chroma signal terminal of S VIDEO jack (75Ω terminated) CH2: Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	28
Specified Value	A = 100mVp-p or less B = 200mVp-p or more

Note: The data of page: 0, address: 10 must be “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2				Check that the burst signal (B) is output to the chroma signal terminal of S VIDEO jack.
3	3	0C	04	Set the data, and press PAUSE button.
4	C	28		Change the data for minimum amplitude of the burst signal level (A). (The data should be “00” to “0F”.)
5	C	28		Press PAUSE button.
6	3	0C	00	Set the data, and press PAUSE button.
7				Check that the burst signal level (B) satisfies the specified value.
8	0	01	00	Set the data.

When the data of page: 3, address: 0C, is 04:



When the data of page: 3, address: 0C, is 00:

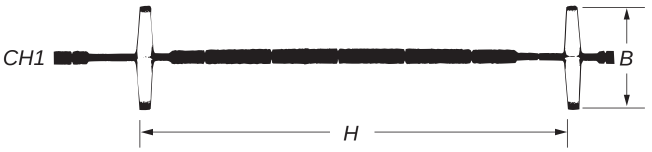


Fig. 6-3-6.

2. S VIDEO OUT Y Level Adjustment (VC-318 Board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified Value	A = 1000 ± 14mV

Note: The data of page: 0, address: 10 must be “00”.

Switch setting:

DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	0C	02	Set the data, and press PAUSE button.
3	C	25		Change the data and set the Y signal level (A) to the specified value.
4	C	25		Press PAUSE button.
5	3	0C	00	Set the data, and press PAUSE button.
6	0	01	00	Set the data.

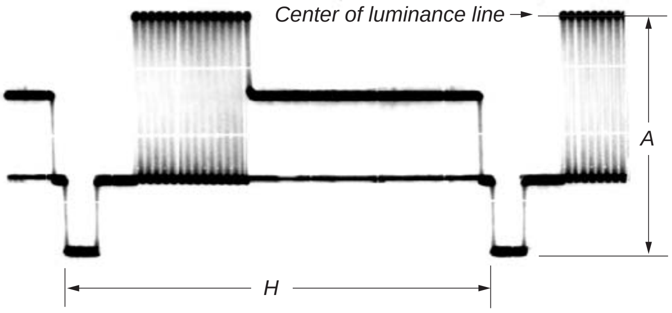


Fig. 6-3-7.

3. S VIDEO OUT Chroma Level Adjustment (VC-318 Board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO jack (75Ω terminated) External trigger: Y signal terminal of S VIDEO jack
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified Value	Cr level: A = 714 ± 14mV (NTSC) A = 700 ± 14mV (PAL) Cb level:B = 714 ± 14mV (NTSC) B = 700 ± 14mV (PAL) Burst level: C = 286 ± 6mV (NTSC) C = 300 ± 6mV (PAL)

Note: The data of page: 0, address: 10 must be "00".

Switch setting:

DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	0C	02	Set the data, and press PAUSE button.
3	C	26		Change the data and set the Cr signal level (A) to the specified value.
4	C	26		Press PAUSE button.
5	C	27		Change the data and set the Cb signal level (B) to the specified value.
6	C	27		Press PAUSE button.
7				Check that the burst signal level (C) is satisfied the specified value.
8	3	0C	00	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

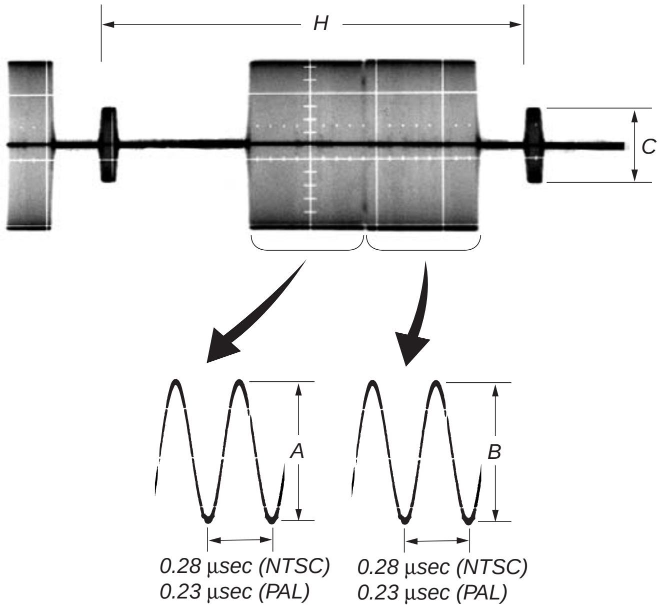


Fig. 6-3-8.

4. VIDEO OUT Y, Chroma Level Check (VC-318 Board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Video terminal of AUDIO VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: A = 286 ± 18mV (NTSC) A = 300 ± 18mV (PAL) Burst level: B = 286 ± 18(mV (NTSC) B = 300 ± 18mV (PAL)

Note: The data of page: 0, address: 10 must be "00".

Switch setting:

DEMO MODE (Menu setting) .... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	3	0C	02	Set the data, and press PAUSE button.
2				Check that the sync signal level (A) satisfies the specified value.
3				Check that the burst signal level (B) satisfies the specified value.
4	3	0C	00	Set the data, and press PAUSE button.

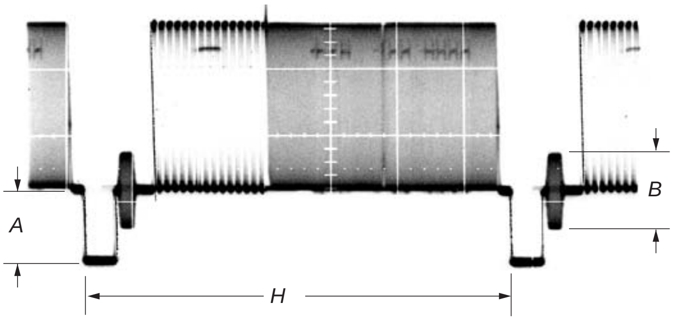


Fig. 6-3-9.

3-5. AUDIO SYSTEM ADJUSTMENTS

Switch setting:

MIC LEVEL (Menu setting) .... AUTO

[Connection of Audio System Measuring Devices]

Connect the audio system measuring devices as shown in Fig. 6-3-10.

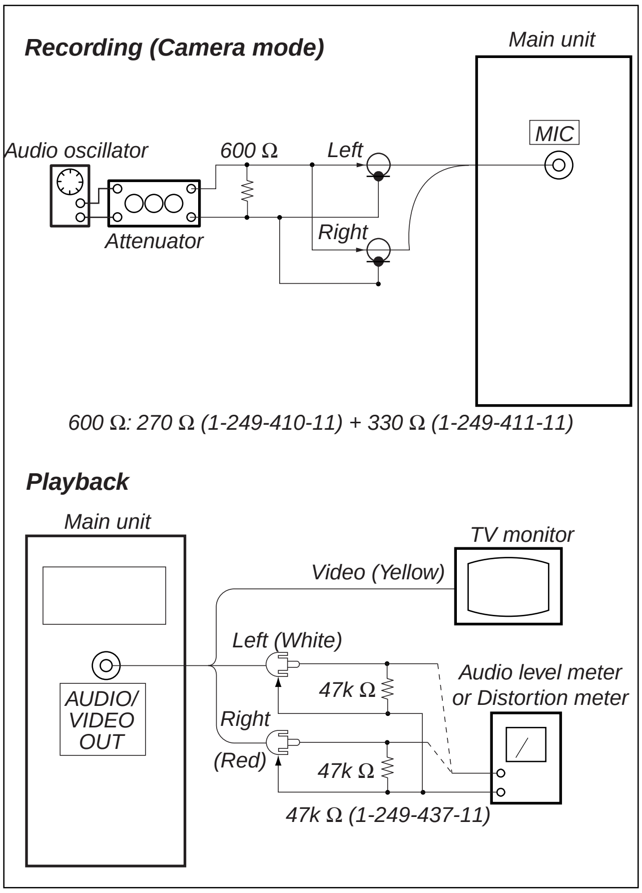

Recording (Camera mode)
Main unit
MIC
Audio oscillator
600 Ω
Left
Right
Attenuator
600 Ω: 270 Ω (1-249-410-11) + 330 Ω (1-249-411-11)
Playback
Main unit
TV monitor
Video (Yellow)
Left (White)
AUDIO/ VIDEO OUT
47k Ω
Audio level meter or Distortion meter
Right (Red)
47k Ω
47k Ω (1-249-437-11)

Fig. 6-3-10.

1. Playback Level Check

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Audio left or right terminal of AUDIO/ VIDEO jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, +3.0 ± 2.0dBs 48 kHz mode: 1 kHz, +3.0 ± 2.0dBs 44.1 kHz mode: The 7.35kHz signal level during EMP OFF is +2.0 ± 2.0dBs. The 7.35kHz signal level during EMP ON is –6 ± 2 dB from the signal level during EMP OFF.

Checking Method:

1) Check that the playback signal level is the specified value.

2. Overall Level Characteristics Check

Mode	Camera recording and playback
Signal	400Hz, –66 dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO /VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3.0dBs

Checking Method:

1) Input the 400Hz, –66dBs signal in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the 400Hz signal level is the specified value.

3. Overall Distortion Check

Mode	Camera recording and playback
Signal	400Hz, –66dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO/VIDEO jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200Hz to 6kHz BPF ON)

Checking Method:

1) Input the 400Hz, –66dBs signal in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the distortion is the specified value.

4. Overall Noise Level Check

Mode	Camera recording and playback
Signal	No signal: Insert a shorting plug in the MIC jack
Measurement Point	Audio left or right terminal of AUDIO/VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –45dBs (IHF-A filter ON, 20kHz LPF ON)

Checking Method:

1) Insert a shorting plug in the MIC jack.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the noise level is the specified value.

5. Overall Separation Check

Mode	Camera recording and playback
Signal	400Hz, –66dBs signal: MIC jack <right> [left] (Connect the MIC jack <left> [right] to GND)
Measurement Point	Audio <left> [right] terminal of AUDIO/VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –40dBs

< > : Left channel check
[ ] : Right channel check

Checking Method:

1) Input the 400Hz, –66dBs signal in the <right> [left] terminal of the MIC jack only.
2) Record in the camera mode.
3) Playback the recorded section.
4) Check that the signal level of the audio <left> [right] terminal is the specified value.

3-6. XLR ADAPTER ADJUSTMENT

Connected athe XLR adapter with the main unit, and perform the adjustments.
Don’t insert any plug in the MIC jack of the main unit.

[Connection of Audio System Measuring Devices]

Connect the audio system measuring devices as shown in Fig. 6-3-11.

Switch setting of the XLR adapter

INPUT1 REC CH1 SELECT CH1
INPUT1 LEVEL .... LINE
INPUT1 +48V .... OFF
INPUT2 LEVEL .... LINE
INPUT2 +48 .... OFF

Menu setting of the main unit

XLR SET:
CH1 LEVEL .... AUTO
CH2 LEVEL .... AUTO

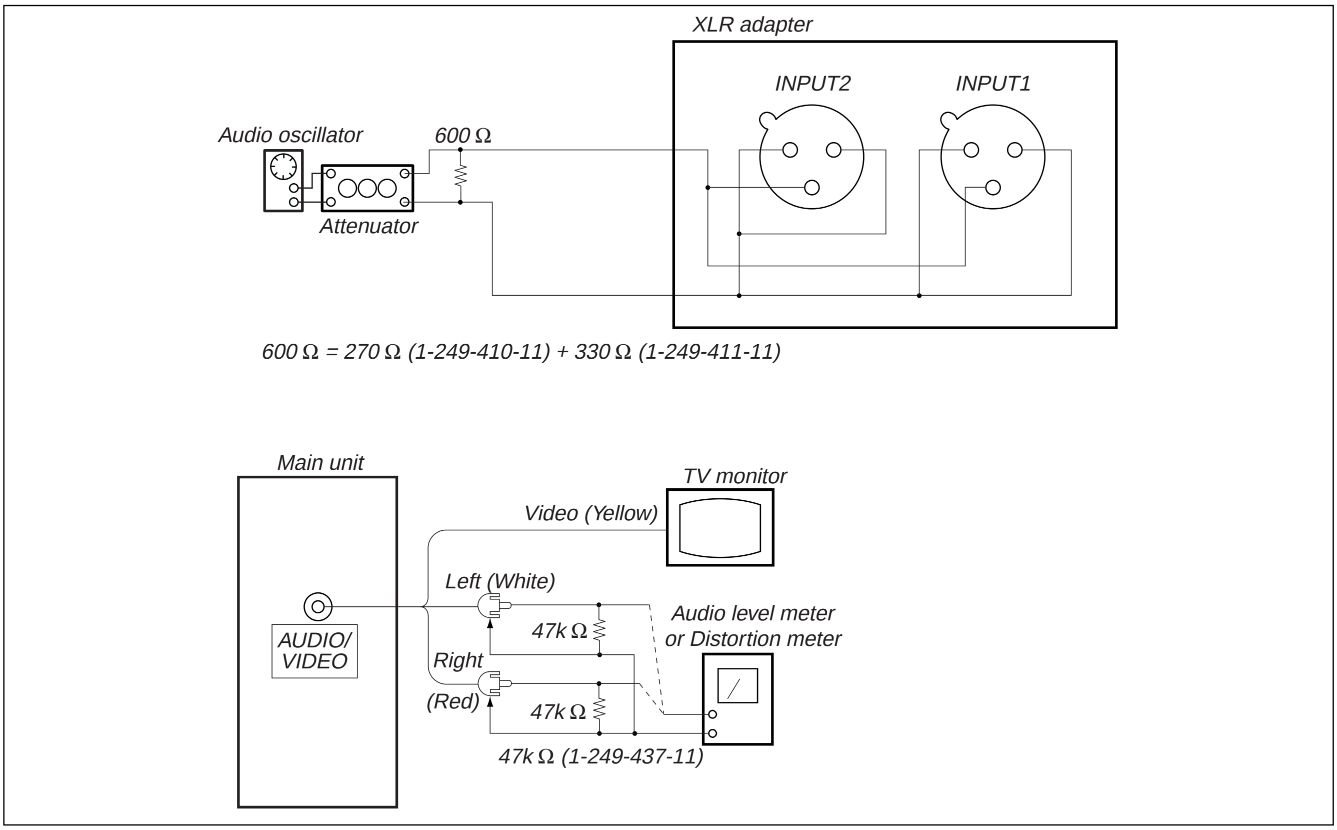

XLR adapter
INPUT2
INPUT1
Audio oscillator
600 Ω
Attenuator
600 Ω = 270 Ω (1-249-410-11) + 330 Ω (1-249-411-11)
Main unit
TV monitor
Video (Yellow)
Left (White)
Audio level meter
or Distortion meter
47k Ω
AUDIO/
VIDEO
Right
(Red)
47k Ω
47k Ω (1-249-437-11)

Fig. 6-3-11.

1. Audio Level Check

Mode	Camera
Signal	1kHz, +4dBs signal: XLR jack INPUT1 and INPUT2
Measurement Point	Left or right terminal of AUDIO/VIDEO jack of the main unit
Measuring Instrument	Audio lebel meter
Specified Value	-10 ± 2dBs

Checking Method:

1) Input the 1kHz, -4Bs signal in the XLR jack.
2) Check that the 1kHz signal level is the specified value.

Note: The signal-input method shown in the above figure is a simplified method. Therefore a little waveform distortion occurs in the output signal. But, there is no hindrance in the audio level check.

6-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the adjustment remote commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to “HOLD” (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 6-4-1.

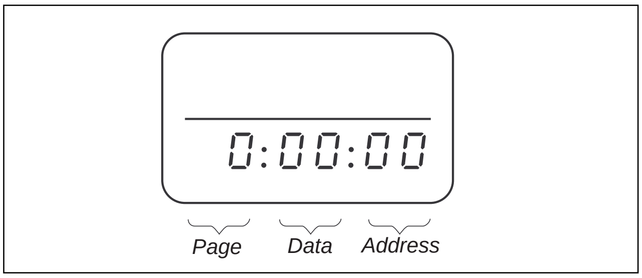


Fig. 6-4-1.

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 19 pages, from 0 to F, 1B, 1E, 1F. (Note)

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (8, A, B, C, D, E, F, 1B, 1E, 1F page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
4) After completing all adjustments, turn off the main power supply once.

Note: When reading or writing the 1B, 1E, 1F page data, select page: 0, address: 10, and set data: 01, then select B, E or F page. The 1B, 1E or 1F page can be chosen by this data setting.
After reading or writing, reset the data of page: 0, address: 10 to “00”.

2. Precautions upon using the adjustment remote commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 6-4-1.

4-3. SERVICE MODE

Note: Before performing the adjustments, check the data of page: 0, address: 10 is “00”. If not, set data: 00 to this address.

1. Setting the Test Mode

Page D	Address 10

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON
05	Forced memory power ON

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off.
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander.
  Select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

Page C	Address F4 to FF

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data “00” is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB). Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

Note: After completing adjustments, be sure to initialize the data of addresses F4 to FF to “00”.

Initializing method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 37, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

2-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses F4, F8 and FC. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

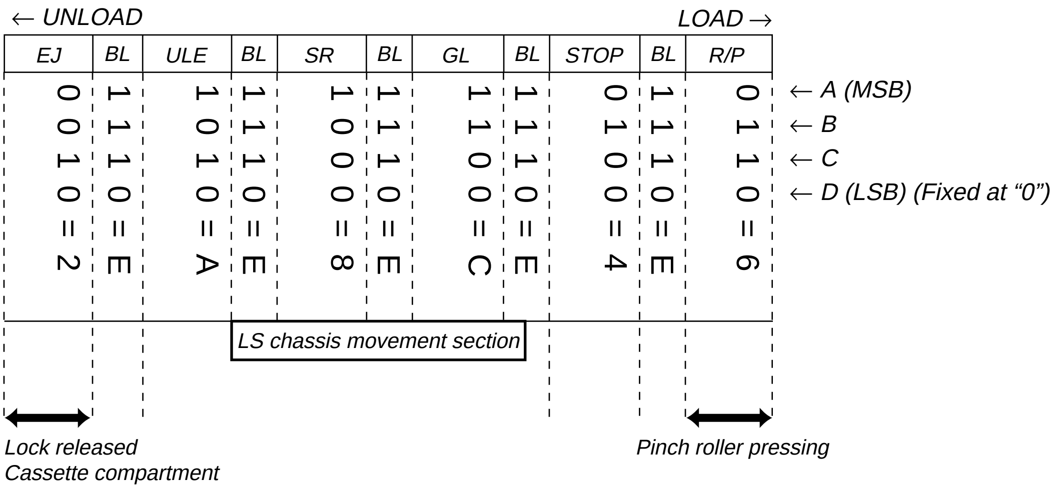
2-2. MSW Code

MSW when errors occur:
Information on MSW (mode SW) when errors occur

MSW when movement starts:
Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)

MSW of target of movement:
Information on target MSW of movement when the mechanism position is moved

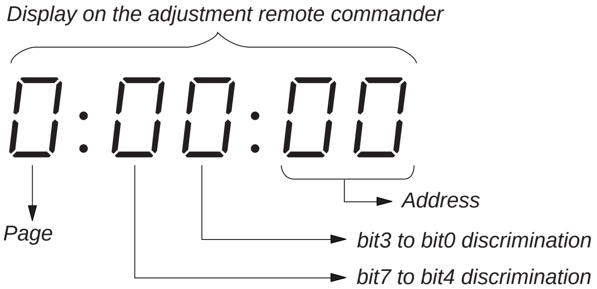
Mechanical Position


← UNLOAD
LOAD →
EJ
BL
ULE
BL
SR
BL
GL
BL
STOP
BL
R/P
0010 = 2
1110 = E
1010 = A
1110 = E
1000 = 8
1110 = E
1100 = C
1110 = E
0100 = 4
1110 = E
0110 = 6
← A (MSB)
← B
← C
← D (LSB) (Fixed at “0”)
LS chassis movement section
Lock released
Cassette compartment
Pinch roller pressing

Position	Code	Contents
EJ	2	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	E	BLANK code, at the boundary between codes.
ULE	A	EJECT completion position. when the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
SR	8	Position at which it is possible to release the S ratchet.
GL	C	Guide loading are performed here.
STOP	4	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	6	PB, REC, CUE, REVIEW, PAUSE positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
NULL	0	Code not existing in the MD. Default value.
	F	Status before finding any mechanism position.

3. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for following items. Use the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Address
Page
bit3 to bit0 discrimination
bit7 to bit4 discrimination

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

Example: If “8E” is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

4. Switch check (1)

Page 7	Address 0C

Note: The data of page: 0, address: 10 must be “00”.

Bit	Function	When bit value=1	When bit value=0
1	MIC jack (MA-425 board J5901)	Used	Not used
2	AUDIO/VIDEO jack (JK-222 board J404)	Used	Not used
3	S VIDEO jack (JK-222 board J401)	Used	Not used

Using method:

1) Select page: 7, address: 0C.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

5. Switch check (2)

Page 3	Address 61

Note: The data of page: 0, address: 10 must be “00”.

Bit	Function	When bit value=1	When bit value=0
6	HEADPHONES jack (JK-222 board J403)	Used	Not used

Using method:

1) Select page: 3, address: 61.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

6. Switch check (3)

Page 2	Address 61 to 66

Note: The data of page: 0, address: 10 must be “00”.

Using method:

1) Select page: 2, address: 61 to 66.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 (00 to 0C)	19 (0D to 24)	32 (25 to 3F)	4E (40 to 5D)	6F (5E to 81)	96 (82 to AA)	C1 (AB to D7)	EB (D8 to FF)
61 (KEY AD1) (IC3101 (60))		PHOTO (PHOTO REC) (CF-1870) (S001)		FADER (FP-504) (S604)	INDEX (FP-504) (S603)	FOCUS INFINITY (FP-504) (S601)	FOCUS AUTO /PUSH AUTO (FP-504) (S601, 602)	FOCUS MANUAL (FP-504) (S601)
62 (KEY AD2) (IC3101 (61))		SEL/PUSH/EXEC (EXECUTE) (KP-1870) (S007)	TC/U-BIT (CK-134) (S5203)	EDIT SEARCH – (CK-134) (S5204)	EDIT SEARCH + (CK-134) (S5205)	ZEBRA 100 (CK-134) (S5202)	ZEBRA OFF (CK-134) (S5202)	ZEBRA 70 (CK-134) (S5202)
63 (KEY AD3) (IC3101 (65))	STOP (CK-134) (S5206)	REW (CK-134) (S5207)	PLAY (CK-134) (S5208)	FF (CK-134) (S5209)		REC (CK-134) (S5211, 5212)	PANEL CLOSE (FP-495) (S001)	PANEL OPEN (FP-495) (S001)
64 (KEY AD4) (IC3101 (66))	COLOR BAR (CK-134) (S5213)	VOLUME + (CK-134) (S5214)	VOLUME – (CK-134) (S5215)	DISPLAY/ TOUCH PANEL (CK-134) (S5216)	MENU (KP-1870) (S001)	AUDIO DUB (CK-134) (S5217)	PANEL REVERSE (FP-495) (S002)	PANEL NORMAL (FP-495) (S002)
65 (KEY AD5) (IC3101 (67))	AUDIO LEVEL (KP-1870) (S002)	EXPOSURE (KP-1870) (S003)	WHITE BALANCE (KP-1870) (S004)	SHUTTER SPEED (KP-1870) (S005)	PROGRAM AE (KP-1870) (S006)	AUTO LOCK (AUTO LOCK) (CK-134) (S5201)	AUTO LOCK (HOLD) (CK-134) (S5201)	AUTO LOCK (RELEASE) (CK-134) (S5201)
66 (KEY AD6) (IC3101 (68))				PAUSE (CK-134) (S5210)	BACK LIGHT (CK-134) (S5218)	SPOT LIGHT (CK-134) (S5219)	CUSTOM PRESET (CK-134) (S5220)	No key input

7. LED, LCD (display window) check

Page 7	Address 07	Bit4, Bit5

Using method:

1) Select page: 7, address: 07, and set the bit value of Bit4 and Bit5 to “1”.
2) Check that LED (Recording lamp) are lit and all segments of LCD (display window) are lit.
3) Select page: 7, address: 07, and set the bit value of Bit4 and Bit5 to “0”.

8. Record of Use check (1)

Page 7	Address A7 to A9

Note1: When replacing the drum assembly or the mechanism deck, initialize the data of address: A7 to A9.
Note2: This data will be kept even if the lithium battery (CK-134 board BT5201 of the cabinet (R) assembly) is removed.
Note3: The data of page: 0, address: 10 must be “00”.

Address	Function		Remarks
A7	Drum rotation counted time (BCD code)	Hour (H)	100000th place digit and 10000th place digit of counted time
A8		Hour (M)	1000th place digit and 100th place digit of counted time
A9		Hour (L)	10th place digit and 1st place digit of counted time

Using method:

1) The record of use data is displayed at addresses: A7 to A9.

Initializing method:

1) Select page: 7, address: 00, and set data: 71.
2) Select page: 7, address: 01, set data: 71 and press the PAUSE button.
3) Check that the data of page: 7, address: 02 is “01”.

9. Record of Use check (2)

Page 7	Address C8 to CD

Note1: This data will be kept even if the lithium battery (CK-134 board BT5201 of the cabinet (R) assembly) is removed.
Note2: The data of page: 0, address: 10 must be “00”.

Address	Function		Remarks
C8	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next.
C9		Month	
CA		Day	
CB	Final condensation occurrence date (BCD code)	Year	
CC		Month	
CD		Day	

Using method:
1) The record of use data is displayed at addresses: C8 to CD.

10. Record of Self-diagnosis check

Page 7	Address B0 to C6

Note1: This data will be kept even if the lithium battery (CK-134 board BT5201 of the cabinet (R) assembly) is removed.
Note2: The data of page: 0, address: 10 must be “00”.

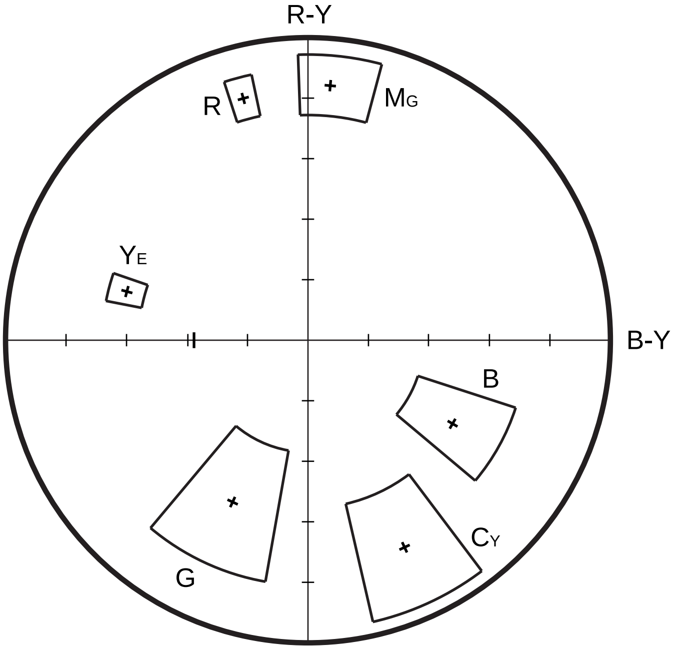
Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

*1 : “01” → “C”, “03” → “E”

Using method:
1) The past self-diagnosis codes are displayed at addresses: BC to C6. Refer to “SELF-DIAGNOSIS FUNCTION” for detail of the self-diagnosis code.

⟨FOR CAMERA COLOR REPRODUCTION ADJUSTMENT⟩

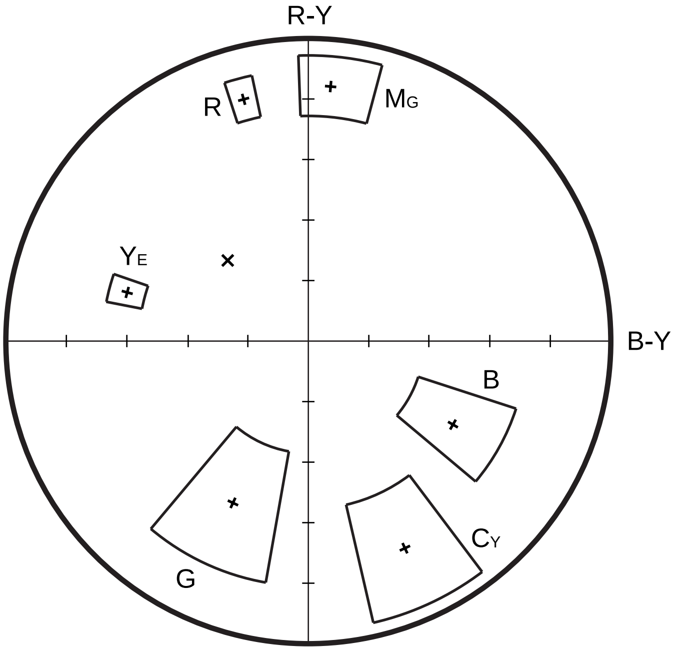
For NTSC model


R-Y
B-Y
R
MG
YE
B
CY
G

DSR-PDX10

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.

For PAL model


R-Y
B-Y
R
MG
YE
B
CY
G

DSR-PDX10P

Sony EMCS Co.

2005K1600-1

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Published by DI Technical Support Department

SONY DSR-PDX10P

SONY®

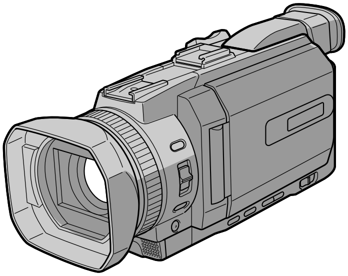
3-077-115-**31** (1)

Digital Camcorder

Operating Instructions

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

DVCAM™ Mini DV Digital Video Cassette



InfoLITHIUM™ M SERIES

Cassette Memory

MEMORY STICK™

DSR-PDX10P

©2002 Sony Corporation

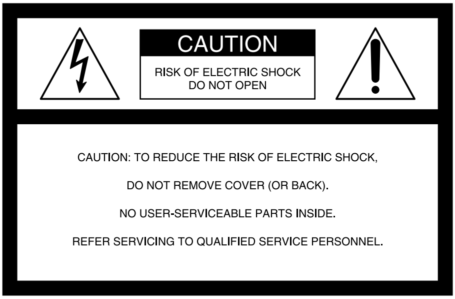
Welcome!

Congratulations on your purchase of this Sony Digital camcorder. With your Digital camcorder you can capture life's precious moments with superior picture and sound quality.
Your Digital camcorder is loaded with advanced features, but at the same time it is very easy to use. You will soon be producing home video that you can enjoy for years to come.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet.
Refer servicing to qualified personnel only.



CAUTION

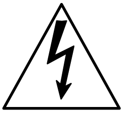
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,

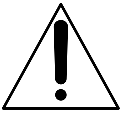
DO NOT REMOVE COVER (OR BACK).

NO USER-SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION

The use of optical instruments with this product will increase eye hazard. As the laser beam used in this Handycam is harmful to eyes, do not attempt to disassemble the cabinet.
Refer to servicing to qualified personnel only.

Memory Stick

N50

Notice

If static electricity or electromagnetism causes data transfer to discontinue midway (fail), restart the application or disconnect and connect the USB cable again.

NOTICE ON THE SUPPLIED AC POWER ADAPTOR FOR CUSTOMERS IN THE UNITED KINGDOM

A moulded plug complying with BS1363 is fitted to this equipment for your safety and convenience.

Should the fuse in the plug supplied need to be replaced, a 5 AMP fuse approved by ASTA or BSI to BS1362 (i.e., marked with ◈ or ▽ mark) must be used.

If the plug supplied with this equipment has a detachable fuse cover, be sure to attach the fuse cover after you change the fuse. Never use the plug without the fuse cover. If you should lose the fuse cover, please contact your nearest Sony service station.

For the customers in Europe

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This product with the CE marking complies with both the EMC Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.
Compliance with these directives implies conformity to the following European standards:

- EN60065:Product Safety (supplied AC Adaptor only)
- EN55103-1:Electromagnetic Interference (Emission)
- EN55103-2:Electromagnetic Susceptibility (Immunity)

This product is intended for use in the following Electromagnetic Environment(s): E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors) and E4 (controlled EMC environment ex. TV studio)

ATTENTION

The electromagnetic fields at the specific frequencies may influence the picture and sound of this digital camcorder.

The supplied interface cable and recommended accessories must be used with the equipment in order to comply with the limits for the EMC Directive.

Voor de klanten in Nederland

Gooi de batterij niet weg maar lever deze in als klein chemisch afval (KCA).

For customers in the U.S.A. and CANADA

CAUTION

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

RECYCLING LITHIUM-ION BATTERIES

Lithium-Ion batteries are recyclable.
You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you.

For more information regarding recycling of rechargeable batteries, call toll free 1-800-822-8837, or visit http://www.rbrc.org/.

Caution: Do not handle damaged or leaking Lithium-Ion batteries.

For customers in the U.S.A.

If you have any questions about this product, you may call:
Sony Customer Information Center 1-800-222-SONY (7669)
The number below is for the FCC related matters only.

Regulatory Information

Declaration of Conformity

Trade Name:	SONY
Model No.:	DSR-PDX10P
Responsible Party:	Sony Electronics Inc.
Address:	680 Kinderkamack Road, Oradell, NJ07649 U.S.A.
Telephone No.:	201-930-6972

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2)this device must accept any interference received, including interference that may cause undesired operation.

"Memory Stick"

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.
The supplied interface cable must be used with the equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

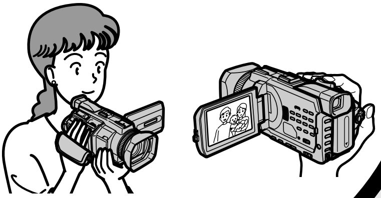
For customers in CANADA

"Memory Stick"

This Class B digital apparatus complies with Canadian ICES-003.

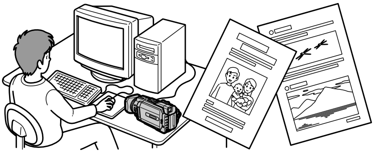
Main Features

Recording moving pictures or still images, and playing them back



- Recording moving pictures on a tape (p. 25)
- Recording still images on a tape (p. 51)
- Playing back a tape (p. 41)
- Recording still images on a "Memory Stick" (p. 48, 144)
- Recording moving pictures on a "Memory Stick" (p. 160)
- Viewing still images recorded on a "Memory Stick" (p. 172)
- Viewing moving pictures on a "Memory Stick" (p. 175)

Capturing images on your computer



- Viewing images recorded on a "Memory Stick" using the USB cable (p. 206, 210)
- Viewing moving pictures recorded on tapes using the USB cable (p. 201)
- Capturing images on your computer from your camcorder using the USB cable (p. 203)
- Converting an analog signal to digital to capture images onto your computer (p. 211)

Other uses

Functions for adjusting the exposure in the recording mode

- BACK LIGHT (p. 36)
- SPOT LIGHT (p. 37)
- PROGRAM AE (p. 66)
- Adjusting the exposure manually (p. 73)
- Flexible Spot Meter (p. 74)

Functions for giving images more impact

- Digital zoom (p. 33)
  The default setting is **OFF**. (To zoom greater than 12×, select the digital zoom power in **D ZOOM** in the menu settings.)
- Fader (p. 55)
- Digital effect (p. 58)
- Titles (p. 126)
- MEMORY MIX (p. 155)

Functions for giving a natural appearance to your recordings

- Sports lesson (p. 66)
- Landscape (p. 66)
- Manual focus (p. 75)
- Spot Focus (p. 77)

Functions for use with recorded tapes

- END SEARCH/EDITSEARCH/Rec Review (p. 39)
- DATA CODE (p. 43)
- Tape PB ZOOM (p. 96)
- TITLE SEARCH (p. 89)
- Digital program editing (p. 101, 167)

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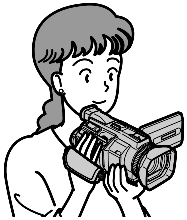
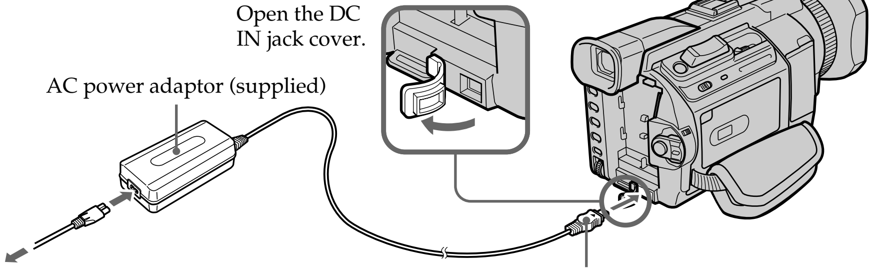
Quick Start Guide – Recording on a tape



This chapter introduces you to the basic features to recorded pictures on tapes of your camcorder. See the page in parentheses "( )" for more information.

1 Connecting the mains lead (p. 19)

Use the battery pack when using your camcorder outdoors (p. 15).



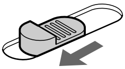
Open the DC IN jack cover.

AC power adaptor (supplied)

Connect the plug with its ▲ mark facing up.

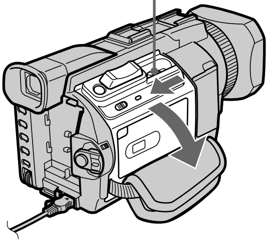
2 Inserting a cassette (p. 22)

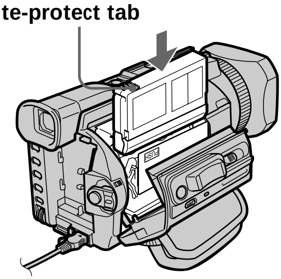
❶ Slide OPEN/⏏ EJECT in the direction of the arrow to open the lid.

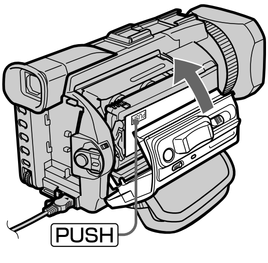


❷ Insert the cassette straight as far as possible into the cassette compartment with the window facing out and the write-protect tab facing upward.

❸ Close the cassette compartment by pressing PUSH on the cassette compartment. After the cassette compartment goes down completely, close the lid until it clicks.

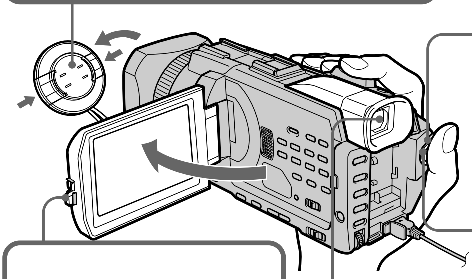




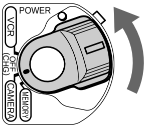


3 Recording a picture (p. 25)

❶ Remove the lens cap.

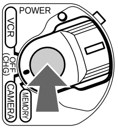


❷ Set the POWER switch to CAMERA while pressing the small green button.



❸ Press OPEN to open the LCD panel.
The picture appears on the screen.

❹ Press START/STOP. Your camcorder starts recording. To stop recording, press START/STOP again.

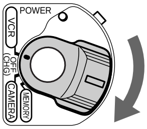


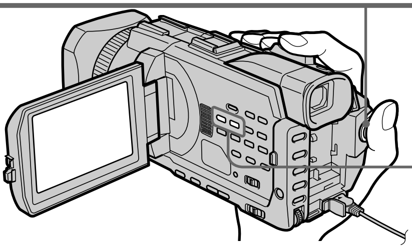
Viewfinder
When the LCD panel is closed, use the viewfinder with your eye against the eyecup.
Adjust the viewfinder lens to your eyesight (p. 29).

When you purchase your camcorder, the clock setting is set to off. If you want to record the date and time for a picture, set the clock setting before recording (p. 20).

4 Monitoring the playback picture on the LCD screen (p. 41)

❶ Set the POWER switch to VCR while pressing the small green button.





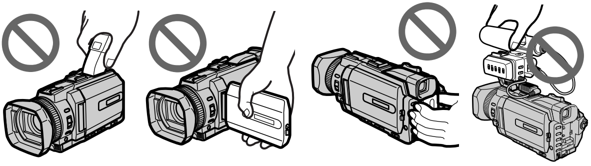
❷ Press ◀◀ to rewind the tape.

REW⏪
◀◀

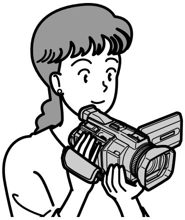
❸ Press ► to start playback.

PLAY
►

NOTE
Do not pick up your camcorder by holding the viewfinder, the LCD panel, the battery pack or the microphone.



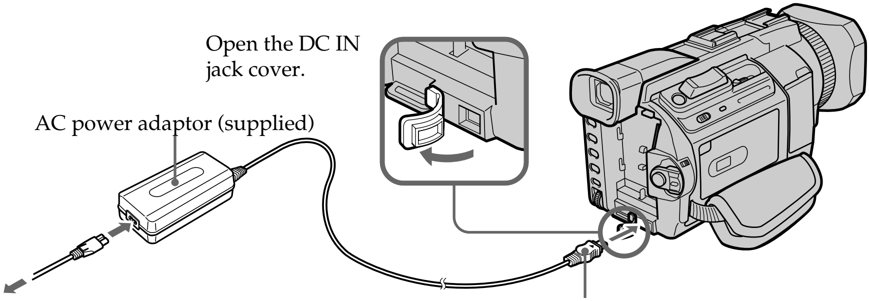
Quick Start Guide – Recording on a "Memory Stick"



This chapter introduces you to the basic features to record on a "Memory Stick" of your camcorder. See the page in parentheses "( )" for more information.

1 Connecting the mains lead (p. 19)

Use the battery pack when using your camcorder outdoors (p. 15).



Open the DC IN jack cover.

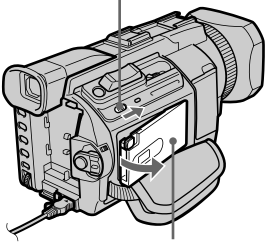
AC power adaptor (supplied)

Connect the plug with its ▲ mark facing up.

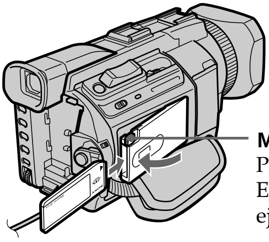
2 Inserting a "Memory Stick" (p. 137)

❶ Slide MEMORY OPEN in the direction of the arrow to open the "Memory Stick" slot.

❷ Insert a "Memory Stick" in the "Memory Stick" slot as far as it can go with the ▶ mark facing up as illustrated.



"Memory Stick" slot

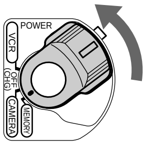


MEMORY EJECT
Press the MEMORY EJECT once lightly to eject it.

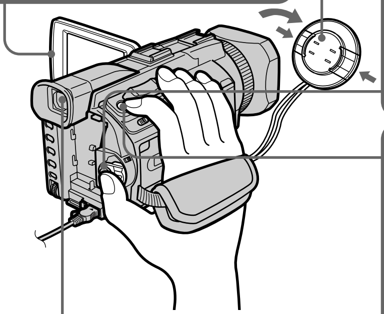
3 Recording a still image on a "Memory Stick" (p. 144)

❶ Remove the lens cap.

❷ Set the POWER switch to MEMORY while pressing the small green button.



❸ Press OPEN to open the LCD panel.
The picture appears on the screen.



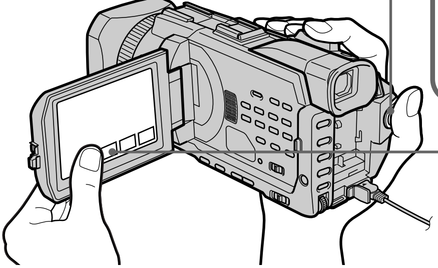
❹ Press PHOTO lightly.
You can start recording when the small green button on the screen stops flashing, and lights up.

❺ Press PHOTO deeper.
The image while pressing the button deeply is recorded on the "Memory Stick."

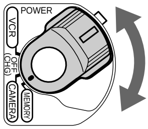
Viewfinder
When the LCD panel is closed, use the viewfinder with your eye against the eyecup.
Adjust the viewfinder lens to your eyesight (p. 29).

When you purchase your camcorder, the clock setting is set to off. If you want to record the date and time for a picture, set the clock setting before recording (p. 20).

4 Monitoring the playback still images on the LCD screen (p. 172)



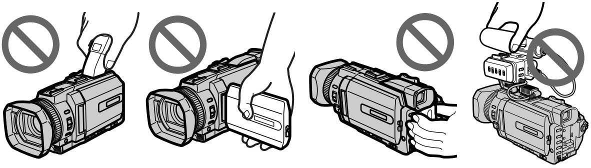
❶ Set the POWER switch to MEMORY or VCR while pressing the small green button.



❷ Press PLAY or ▭ PB. The last recorded image is displayed.

PLAY or ▭PB

NOTE
Do not pick up your camcorder by holding the viewfinder, the LCD panel, the battery pack or the microphone.



Using this manual

As you read through this manual, buttons and settings on your camcorder are shown in capital letters.

e.g. Set the POWER switch to CAMERA.

When you carry out an operation, you can hear a beep to indicate that the operation is being carried out.

Note on Cassette Memory

Your camcorder is based on the DVCAM/DV format. We recommend that you use a tape with cassette memory CM.

Functions that require different operations depending on whether or not the tape has a cassette memory are:
– END SEARCH (p. 39)
– INDEX SEARCH (p. 87)
– DATE SEARCH (p. 90)
– PHOTO SEARCH (p. 92)

Functions you can operate only with the cassette memory are:
– TITLE SEARCH (p. 89)
– Superimposing a title (p. 126)
– Labelling a cassette (p. 131)

For details of cassette types, see page 236.

CM only You see this mark in the introduction of features that are operated only with cassette memory.

Cassettes with cassette memory are marked by CM (Cassette Memory).

Note on TV colour systems

TV colour systems differ depending on the country or region. To view your recordings on a TV, you need a PAL system-based TV.

Copyright precautions

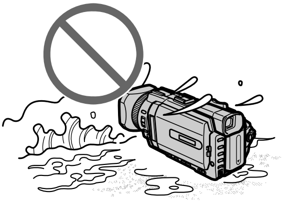
Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorised recording of such materials may be contrary to the copyright laws.

Precautions on camcorder care

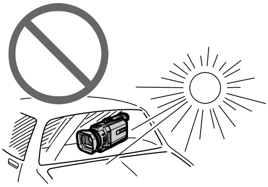
Lens and LCD screen/finder (on mounted models only)

- **The LCD screen and the finder are manufactured using extremely high-precision technology, so over 99.99% of the pixels are operational for effective use. However, there may be some tiny black points and/or bright points (white, red, blue or green in colour) that constantly appear on the LCD screen and the finder. These points are normal in the manufacturing process and do not affect the recording in any way.**
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired **[a]**.
- Never leave your camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight **[b]**.
- Be careful when placing the camera near a window or outdoors. Exposing the LCD screen, the finder or the lens to direct sunlight for long periods may cause malfunctions **[c]**.
- Do not directly shoot the sun. Doing so might cause your camcorder to malfunction. Take pictures of the sun in low light conditions such as dusk **[d]**.

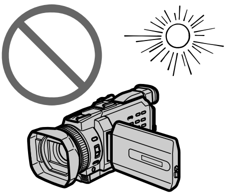
[a]



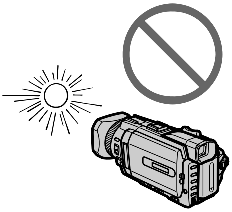
[b]



[c]



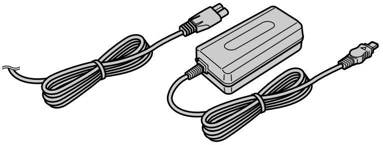
[d]



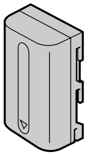
Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.

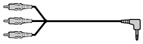
1



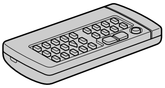
2



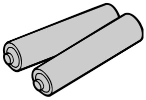
3



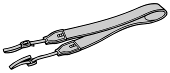
4



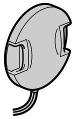
5



6



7



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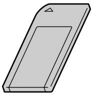

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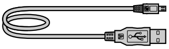
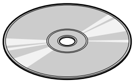
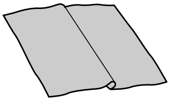


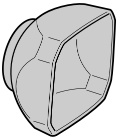
10



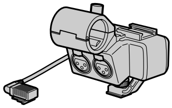
11



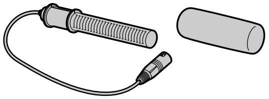
12



13



14



1 **AC-L10A/L10B/L10C AC power adaptor** (1), **mains lead** (1) (p. 16)

2 **NP-FM50 battery pack** (1) (p. 15, 16)

3 **A/V connecting cable** (1) (p. 47)

4 **Wireless Remote Commander** (1) (p. 258)

5 **R6 (Size AA) battery for Remote Commander** (2) (p. 259)

6 **Shoulder strap** (1)

7 **Lens cap** (1) (p. 25)

8 **"Memory Stick"** (1) (p. 135)

9 **USB cable** (1) (p. 190)

10 **CD-ROM (SPVD-008 USB Driver)** (1) (p. 195)

11 **Cleaning cloth** (1) (p. 245)

12 **Wide lens hood** (1) (p. 32)

13 **XLR adaptor (with a Microphone holder)** (1) (p. 29)

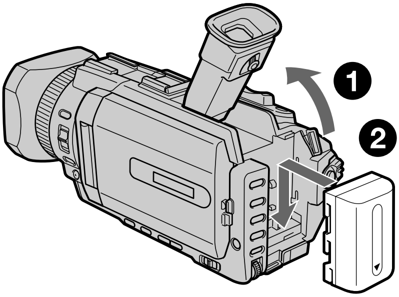
14 **Microphone** (1), **Wind screen** (1) (p. 29)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, storage media, etc.

Step 1 Preparing the power supply

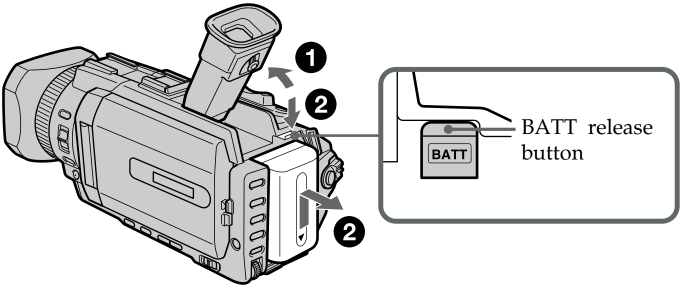
Installing the battery pack

(1) Lift up the viewfinder.
(2) Slide the battery pack down until it clicks.



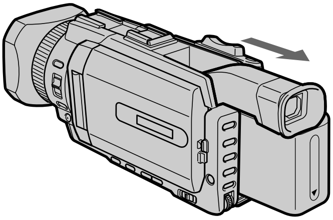
To remove the battery pack

(1) Lift up the viewfinder.
(2) Slide the battery pack out in the direction of the arrow while pressing BATT down.



If you use the large capacity battery pack

If you install the NP-FM70/QM71/FM90/FM91/QM91 battery pack on your camcorder, extend its viewfinder.

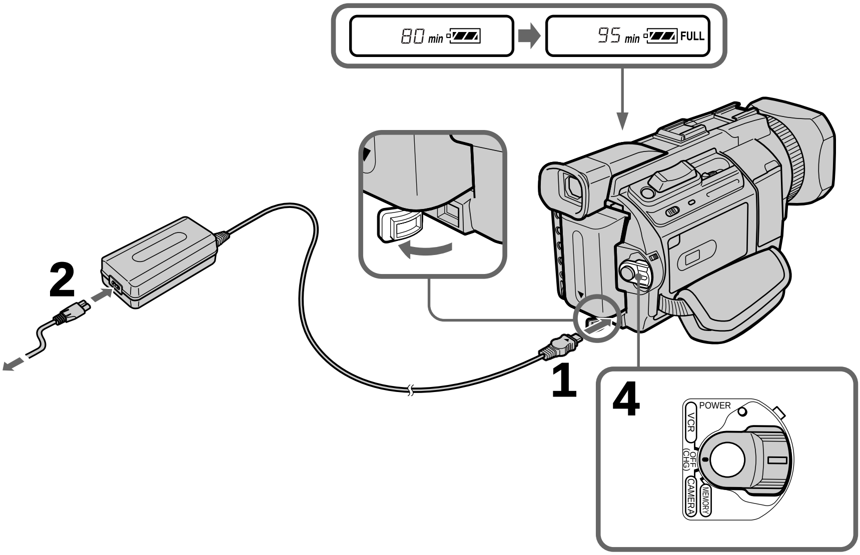


Charging the battery pack

Use the battery pack after charging it for your camcorder.
Your camcorder operates only with the **"InfoLITHIUM" battery pack (M series)**.
See page 239 for details of "InfoLITHIUM" battery pack.

(1) Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
(2) Connect the mains lead to the AC power adaptor.
(3) Connect the mains lead to the wall socket.
(4) Set the POWER switch to OFF (CHG). Charging begins. The remaining battery time is indicated in minutes on the display window.

When the remaining battery indicator changes to ▰, **normal charge** is completed. To fully charge the battery **(full charge)**, leave the battery pack attached for about one hour after normal charge is completed until FULL appears in the display window. Fully charging the battery allows you to use the battery longer than usual.



After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note

Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.

Remaining battery time indicator

The remaining battery time indicator in the display window indicates the approximate recording time with the viewfinder.

Until your camcorder calculates the actual remaining battery time

"---- min" appears in the display window.

When you use the AC power adaptor

Place the AC power adaptor near a wall socket. If any trouble occurs with this unit, disconnect the plug from a wall socket as soon as possible to cut off the power.

Charging time

Battery pack	Full charge (Normal charge)
NP-FM50 (supplied)	150 (90)
NP-FM70	240 (180)
NP-QM71	260 (200)
NP-FM90	330 (270)
NP-FM91/QM91	360 (300)

Approximate minutes at 25°C (77°F) to charge an empty battery pack
The charging time may increase if the battery's temperature is extremely high or low because of the ambient temperature.

Recording time

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous	Typical*	Continuous	Typical*
NP-FM50 (supplied)	95	55	75	45
NP-FM70	205	120	160	95
NP-QM71	235	140	185	110
NP-FM90	310	185	245	145
NP-FM91/QM91	360	215	285	170

Approximate minutes when you use a fully charged battery and the XLR adaptor is not installed

* Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Playing time

Battery pack	Playing time with LCD closed	Playing time on LCD screen
NP-FM50 (supplied)	165	110
NP-FM70	345	230
NP-QM71	400	270
NP-FM90	520	355
NP-FM91/QM91	605	410

Approximate minutes when you use a fully charged battery

Note

Approximate recording time and playing time at 25°C (77°F). The battery life will be shorter if you use your camcorder in a cold environment.

If the power goes off although remaining battery time indicator indicates that the battery pack has enough power to operate

Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.

Recommended charging temperature

We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F).

What is ”InfoLITHIUM”?

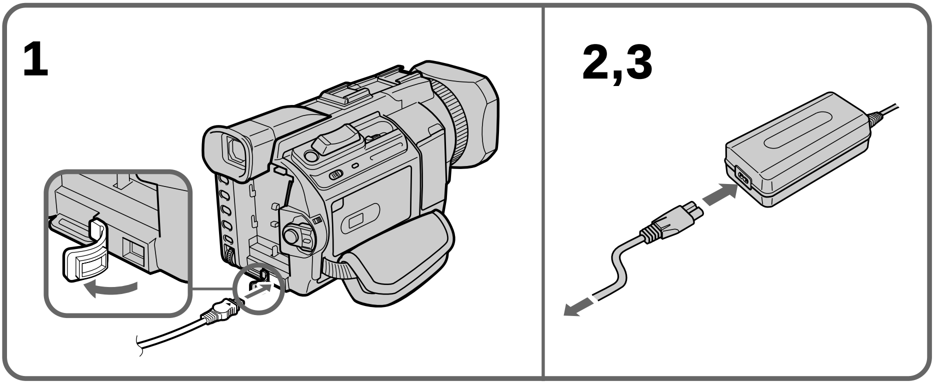
The “InfoLITHIUM” is a lithium ion battery pack that can exchange data such as battery consumption with compatible electronic equipment. This unit is compatible with the “InfoLITHIUM” battery pack (M series). Your camcorder operates only with the “InfoLITHIUM” battery. “InfoLITHIUM” M series battery packs have the InfoLITHIUM™ M SERIES mark.

“InfoLITHIUM” is a trademark of Sony Corporation.

Connecting to a wall socket

When you use your camcorder for a long time, we recommend that you power it from a wall socket using the AC power adaptor.

(1) Open the DC IN jack cover. Connect the AC power adaptor supplied with your camcorder to the DC IN jack on your camcorder with the plug's ▲ mark facing up.
(2) Connect the mains lead to the AC power adaptor.
(3) Connect the mains lead to a wall socket.



PRECAUTION
The set is not disconnected from the AC power supply (the mains) as long as it is connected to the wall socket, even if the set itself has been turned off.

Notes

- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority." This means that the battery pack cannot supply any power if the mains lead is connected to the DC IN jack, even when the mains lead is not plugged into a wall socket.

Using a car battery

Use Sony Car Battery Adaptor (optional).
Refer to the operating instructions of the Car Battery Adaptor for further information.

Step 2 Setting the date and time

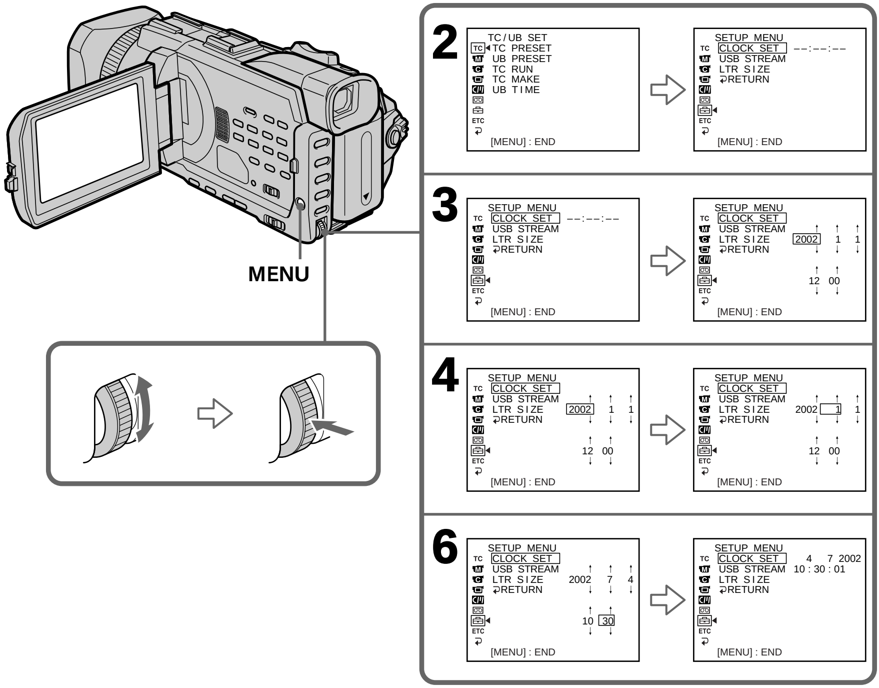
Set the date and time when you use your camcorder for the first time. “CLOCK SET” will be displayed each time that you set the POWER switch to CAMERA or MEMORY unless you set the date and time settings.
If you do not use your camcorder for **about four months**, the date and time may be cleared from memory (bars may appear) because the built-in rechargeable battery installed in your camcorder will have been discharged (p. 247).
Set the year, month, day, hour and then the minute, in that order.

(1) Press MENU to display the menu settings while the POWER switch is set to CAMERA or MEMORY.
(2) Turn the SEL/PUSH EXEC dial to select 🧰, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select CLOCK SET, then press the dial.
(4) Turn the SEL/PUSH EXEC dial to select the desired year, then press the dial.
The year changes as follows:

1995 ← · · · · → 2002 ← · · · · → 2079

(5) Set the month, day and hour by turning the SEL/PUSH EXEC dial and pressing the dial.
(6) Set the minute by turning the SEL/PUSH EXEC dial and pressing the dial by the time signal. The clock starts to move.
(7) Press MENU to make the menu settings disappear.

Step 2 Setting the date and time


MENU
2
TC/UB SET
TC PRESET
UB PRESET
TC RUN
TC MAKE
UB TIME
[MENU] : END
SETUP MENU
CLOCK SET --:--:--
USB STREAM
LTR SIZE
RETURN
[MENU] : END
3
SETUP MENU
CLOCK SET --:--:--
USB STREAM
LTR SIZE
RETURN
[MENU] : END
SETUP MENU
CLOCK SET
USB STREAM 2002 1 1
LTR SIZE
RETURN
12 00
[MENU] : END
4
SETUP MENU
CLOCK SET
USB STREAM 2002 1 1
LTR SIZE
RETURN
12 00
[MENU] : END
SETUP MENU
CLOCK SET
USB STREAM 2002 1 1
LTR SIZE
RETURN
12 00
[MENU] : END
6
SETUP MENU
CLOCK SET
USB STREAM 2002 7 4
LTR SIZE
RETURN
10 30
[MENU] : END
SETUP MENU
CLOCK SET 4 7 2002
USB STREAM 10 : 30 : 01
LTR SIZE
RETURN
[MENU] : END

If you do not set the date and time

"--:--:--" and "-- -- ----" are recorded on the data code of the tape and the "Memory Stick."

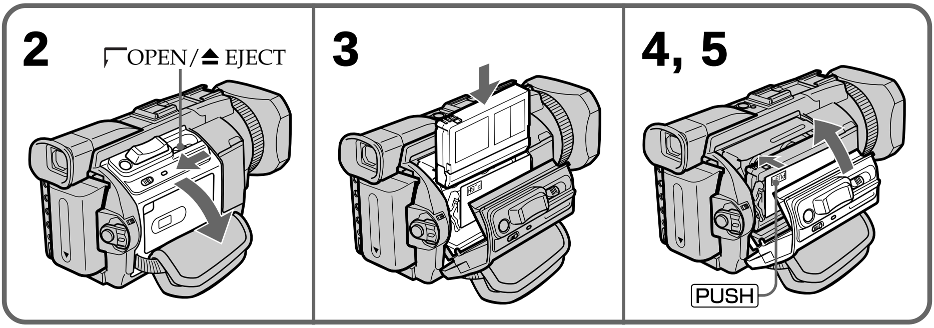
Note on the time indicator

The internal clock of your camcorder operates on a 24-hour cycle.

Step 3 Inserting a cassette

You can use the mini DVCAM cassette and mini DV cassette in this camcorder.

(1) Prepare the power supply.
(2) Slide ┌OPEN/⏏ EJECT in the direction of the arrow and open the lid.
The cassette compartment automatically lifts up and opens.
(3) Insert the cassette straight as far as possible into the cassette compartment with the window facing out and the write-protect tab facing upward.
(4) Close the cassette compartment by pressing PUSH on the cassette compartment.
The cassette compartment automatically goes down.
(5) After the cassette compartment goes down completely, close the lid until it clicks.



To eject a cassette

Follow the procedure above, and take out the cassette in step 3.

Notes

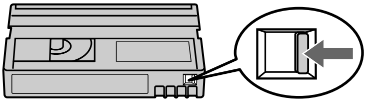
- Do not press the cassette compartment down forcibly. Doing so may cause a malfunction.
- The cassette compartment may not be closed when you press any part of the cassette compartment other than the PUSH mark.

When you use a cassette with cassette memory

Read the instruction about cassette memory to use this function properly (p. 236).

To prevent accidental erasure

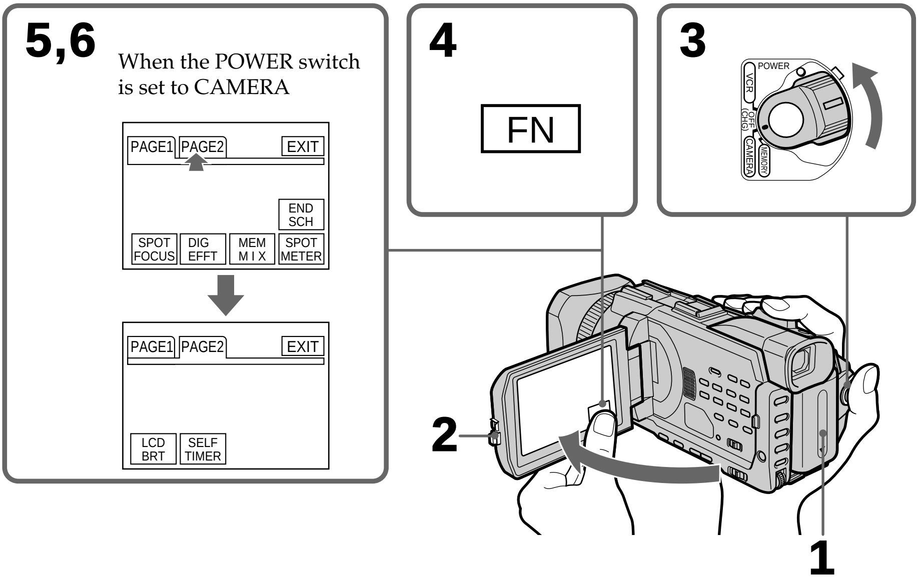
Slide the write-protect tab on the cassette to expose the red mark.



Step 4 Using the touch panel

Your camcorder has operation buttons on the LCD screen. Touch the LCD screen directly with your finger to operate each function. This section describes how to operate the touch panel during recording or playing back images on a tape.

(1) Prepare the power supply. (p. 15 to 19)
(2) Press OPEN to open the LCD panel.
(3) Set the POWER switch to CAMERA or VCR while pressing the small green button.
(4) Press FN. Operation buttons appear on the LCD screen.
(5) Press PAGE2 to go to PAGE2. Operation buttons appear on the LCD screen.
(6) Press a desired operation item. Refer to relevant pages of this manual for each function.


5,6
PAGE1
PAGE2
EXIT
END SCH
SPOT FOCUS
DIG EFFT
MEM MIX
SPOT METER
PAGE1
PAGE2
EXIT
LCD BRT
SELF TIMER
4
FN
3
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
2
1

When the POWER switch is set to CAMERA

To return to FN

Press EXIT.

To execute settings

Press ⮐ OK. The display returns to PAGE1/PAGE2.

To cancel settings

Press ⮐ OFF. The display returns to PAGE1/PAGE2.

Notes

- When using the touch panel, press operation buttons with your thumb supporting the LCD panel from the back side of it or press those buttons lightly with your index finger.
- Do not press the LCD screen with sharp-pointed objects such as a pen.
- Do not press the LCD screen too hard.
- Do not touch the LCD screen with wet hands.
- If FN is not on the LCD screen, touch the LCD screen lightly to make it appear. You can control the display with DISPLAY/TOUCH PANEL on your camcorder.
- When operation buttons do not work even if you press them, an adjustment is required (CALIBRATION) (p. 246).
- When the LCD screen gets dirty, clean it with the supplied cleaning cloth.

When executing each item

The green bar appears above the item.

If the items are not available

The colour of the items changes to gray.

Press FN to display the following buttons:

When the POWER switch is set to CAMERA

PAGE1	END SCH, SPOT FOCUS, DIG EFFT, MEM MIX, SPOT METER
PAGE2	LCD BRT, SELFTIMER

When the POWER switch is set to VCR

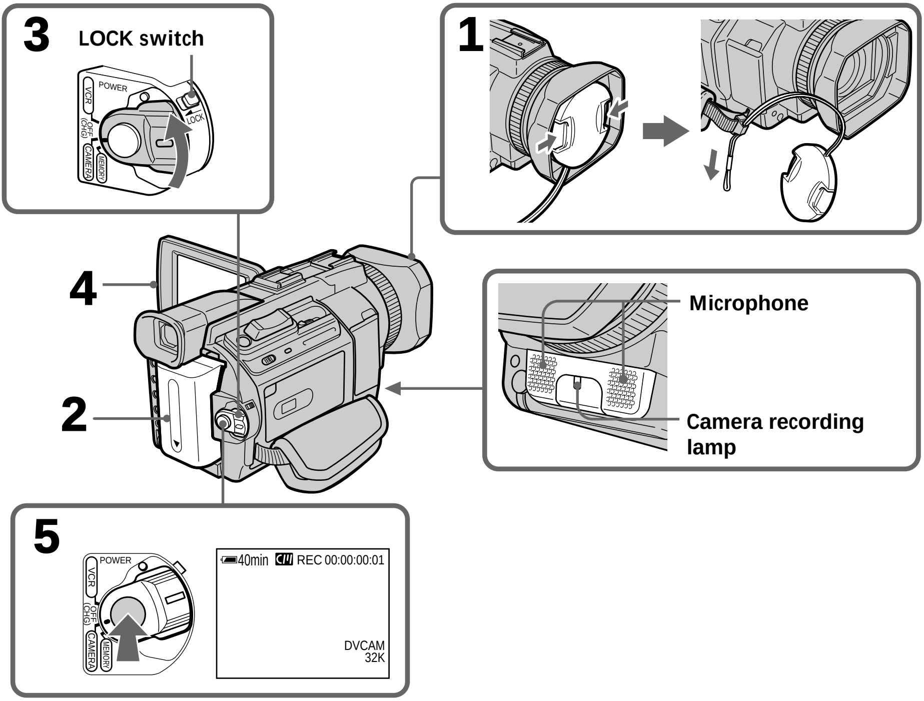
PAGE1	LCD BRT, ▭ PB, INDEX, END SCH
PAGE2	DIG EFFT, PB ZOOM, ▭ PB, INDEX, DATA CODE

See page 138 when the POWER switch is set to MEMORY.

Recording a picture

Your camcorder automatically focuses for you.

(1) Remove the lens cap by pressing both knobs on its sides and pull the lens cap string to fix it.
(2) Prepare the power supply and insert a cassette. See “Step 1” to “Step 3” for more information. (p. 15 to 22)
(3) Set the POWER switch to CAMERA while pressing the small green button. This sets your camcorder to the standby.
(4) Press OPEN to open the LCD panel. The viewfinder automatically turns off.
(5) Press START/STOP. Your camcorder starts recording. The REC indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again.


3
LOCK switch
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
LOCK
1
4
2
Microphone
Camera recording lamp
5
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
40min
REC 00:00:00:01
DVCAM
32K

Notes

- Fasten the grip strap firmly.
- The recording data (date/time or various settings when recorded) are not displayed while recording. However, they are recorded automatically on the tape. To display the recording data, press DATA CODE on PAGE2 during playback. You can also use the Remote Commander for this operation (p. 43).

Note on the LOCK switch

When you slide the LOCK switch in the direction of the arrow, the POWER switch can no longer be set to MEMORY accidentally. The LOCK switch is set to the further side (unlock position) as the default setting.

To enable smooth transition

Transition between the last scene you recorded and the next scene is smooth as long as you do not eject the cassette even if you turn off your camcorder.
However, check the following:
– Do not mix recordings in the DVCAM format and the DV format on one tape.
– When you change the battery pack, set the POWER switch to OFF (CHG).
– When you use a cassette with cassette memory, however, you can make the transition smooth even after ejecting the cassette if you use the END SEARCH (p. 39).

If you leave your camcorder in the standby for five minutes

The head drum of the camcorder automatically stops rotating. This is to prevent the tape wear and save the battery power. To re-start recording, press START/STOP. It may take more time to start recording. This is not a malfunction.

Note on the recording format

The playback picture may be distorted or the time code may not be written properly between scenes when you change the recording format.

The battery use time when you record using the LCD screen

The battery time is slightly shorter than the shooting time using the viewfinder.

After recording

(1) Set the POWER switch to OFF (CHG).
(2) Close the LCD panel.
(3) Eject the cassette.
(4) Remove the battery pack.

Usable cassettes

You can record both on mini DVCAM cassettes and on mini DV cassettes using your camcorder. When you use a mini DV cassette, set REC MODE to DV SP in the menu settings. You can record on a tape 1.5 times longer than the DVCAM format. When you want to record in the DV format or to make longer recording, use the mini DV cassette.

Notes

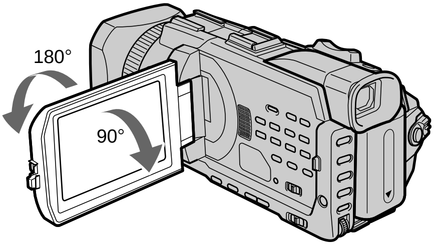
- If you record in the DV format, the transition of a tape may not be smooth. We recommend that you use mini DVCAM cassettes and set REC MODE to DVCAM in the menu settings to obtain reliable clear pictures.
- You cannot record on a tape in LP mode in the DV format.

If you use a mini DV cassette without setting REC MODE to DV SP
The recordable time is 2/3 time that indicated on the cassette.

Cassettes that can be played back with your camcorder
You can play back both cassettes recorded in the DVCAM format or in the DV format, however, you cannot play back cassettes that recorded in LP mode in the DV format.

Adjusting the LCD screen

The LCD panel can be opened up to 90 degrees.
The LCD panel moves about 90 degrees to the viewfinder side and about 180 degrees to the lens side.



When closing the LCD panel, set it vertically, and swing it into the camcorder body.

Note
When the LCD panel is opened, the viewfinder automatically turns off and no image is displayed in the viewfinder. However, in the Mirror Mode, images are displayed in the viewfinder as well (p. 34).

LCD screen

- When you use the LCD screen outdoors in direct sunlight, the LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.
- When you adjust the angle of the LCD panel, make sure if the LCD panel is opened up to 90 degrees.

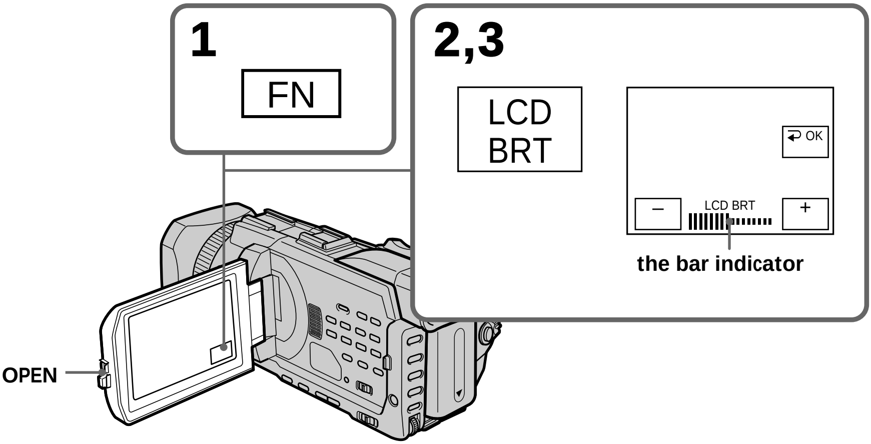
Adjusting the brightness of the LCD screen

(1) Press FN and select PAGE2 while the POWER switch is set to CAMERA or MEMORY.
When you set the POWER switch to VCR, press FN to display PAGE1.

(2) Press LCD BRT. The screen to adjust the brightness of the LCD screen appears.

(3) Adjust the brightness of the LCD screen using –/+.
– : to dim
+ : to brighten

(4) Press ↩ OK to return to PAGE1/PAGE2.



To return to FN

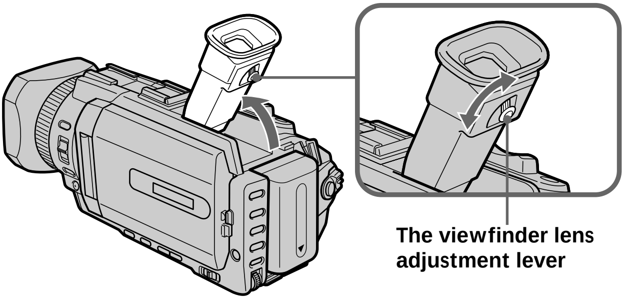
Press EXIT.

Even if you adjust LCD BRT
The recorded picture will not be affected.

Adjusting the viewfinder

If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the images in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.



Viewfinder backlight

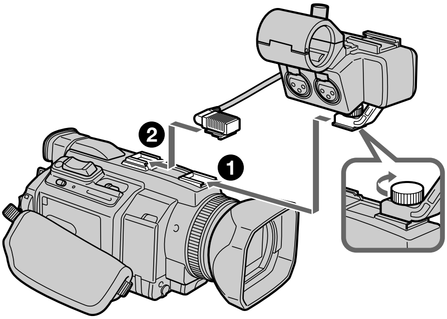
You can change the brightness of the backlight. Select VF B.L. in the menu settings when using the battery pack (p. 216).

Installing the supplied microphone

Install the supplied XLR adaptor and microphone. You can get the desired audio quality.

(1) Attach the XLR adaptor to the accessory shoe on the camcorder and tighten the screw of the XLR adaptor.

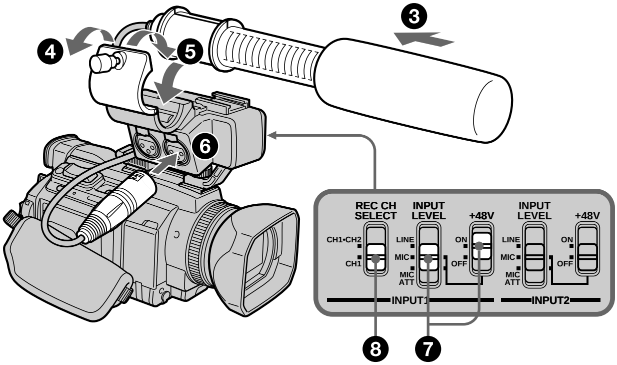
(2) Connect the hot shoe plug of the XLR adaptor to the intelligent accessory shoe of the camcorder.



(Continued on the following page)

(3) Attach the wind screen to the microphone.
(4) Loosen the microphone holder screw and open the cover.
(5) Place the microphone into the holder with the model name (ECM-NV1) facing upward, close the cover, and tighten the screw.
(6) Connect the plug of the microphone to the INPUT1 connector.
(7) Set the INPUT LEVEL selector to MIC or MIC ATT.
When the selector is set to MIC ATT, you can reduce the volume by about 20 dB. And set the +48V switch to ON.
(8) Select the channel to be used, using the REC CH SELECT switch. Used channels according to the position of the REC CH SELECT switch are as follows:

The position of the REC CH SELECT switch	Audio input through	The audio is recorded on
CH1•CH2	INPUT1	Channel 1/2
	INPUT2	—
CH1	INPUT1	Channel 1
	INPUT2	Channel 2


3
4
5
6
REC CH SELECT
INPUT LEVEL
+48V
INPUT LEVEL
+48V
CH1•CH2
CH1
LINE
MIC
MIC ATT
ON
OFF
LINE
MIC
MIC ATT
ON
OFF
INPUT1
INPUT2
8
7

Note

If you use equipment other than a 48-V microphone with the +48V switch set to ON, a malfunction of the equipment may occur. When you connect equipment other than a 48-V microphone, set it to OFF.

When the wind is blowing hard

Set INPUT1 of the LOW CUT switch to ON when the audio is input via the INPUT1 connector. Set INPUT2 to ON when the audio is input via the INPUT2 connector. The sound of wind is reduced.

We recommend that you set MIC NR to OFF in the menu settings in the following cases:

– When you use the external microphone at a distance from the camcorder.
– When the REC CH SELECT switch is set to CH1 and you will not record any audio via the INPUT2 connector.
– When you set the INPUT LEVEL selector to LINE.

When you use an external microphone

Make sure that the wind screen does not appear on the screen, using an underscan monitor.

When you unplug the microphone plug

Unplug it while holding the PUSH button down.

When you connect equipment other than a microphone

Set the +48V switch to OFF and the INPUT LEVEL selector to LINE.

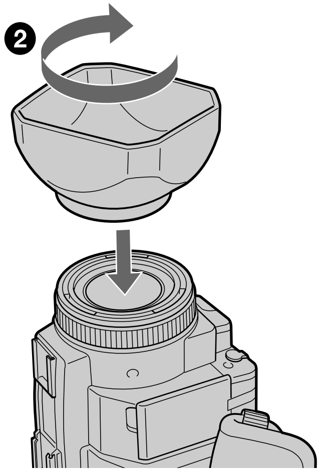
When detaching the XLR adaptor

Unplug the hot shoe plug of the XLR adaptor from the intelligent accessory shoe beforehand. Detach the XLR adaptor after having loosened the screw of the XLR adaptor.

Attaching the supplied wide lens hood

(1) To remove the lens hood mounted on the camcorder, screw the lens hood counterclockwise.

(2) We recommend you place the unit with the lens side up and attach the wide lens hood from above. The wide lens hood has three protrusions on it. Align the protrusions on the wide lens hood with the groove on the lens and screw the wide lens hood clockwise.



Note

You cannot attach filters or other objects onto the wide lens hood.
If you forcibly attach these objects onto the lens hood, you will no longer be able to remove filters or other objects from the hood.

When attaching the optional conversion lens

Attach the conversion lens after having attached the wide lens hood.

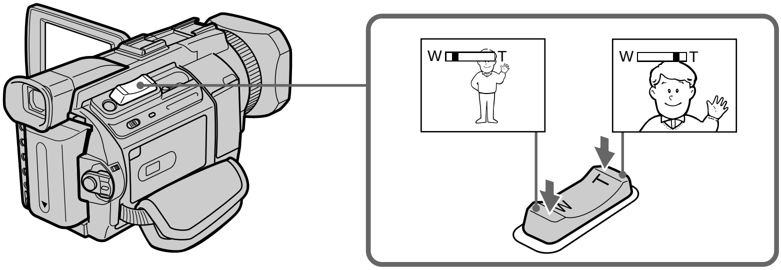
When using the optional flash

Attaching the wide lens hood may block the light from the flash. We recommend removing the wide lens hood while shooting with the optional flash.

Using the zoom feature

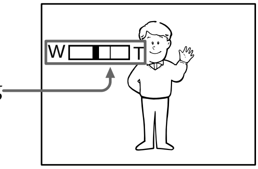
Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom. Using the zoom sparingly results in better-looking recordings.

W : Wide-angle (subject appears farther away)
T : Telephoto (subject appears closer)



To use zoom greater than 12×
Zoom greater than 12× is performed digitally. Digital zoom can be set to 24× or 48×. To activate digital zoom, select the digital zoom power in D ZOOM in the menu settings (p. 215). The digital zoom is set to OFF as a default setting.

The right side of the bar shows the digital zooming zone.
The digital zooming zone appears when you select the digital zoom power in the menu settings.



When you shoot close to a subject
If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 feet 5/8 inch) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 inch) away in the wide-angle position.

Note on digital zoom
The picture quality deteriorates as you move the power zoom lever towards the "T" side.

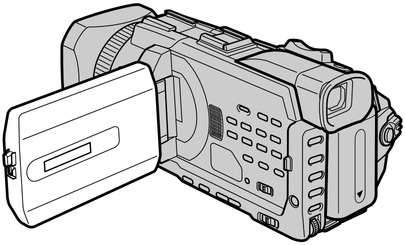
When the POWER switch is set to MEMORY
You cannot use the digital zoom.

Shooting with the Mirror Mode

This feature allows the camera subject to view him-or herself on the LCD screen. The subject uses this feature to check his or her own image on the LCD screen while you look at the subject in the viewfinder.

Set the POWER switch to CAMERA or MEMORY.
Rotate the LCD screen 180 degrees.
The ☺ indicator appears in the viewfinder and on the LCD screen.

❚❚● appears in the standby, and ● appears in the recording while the POWER switch is set to CAMERA. Some of other indicators appear mirror-reversed and others are not displayed.



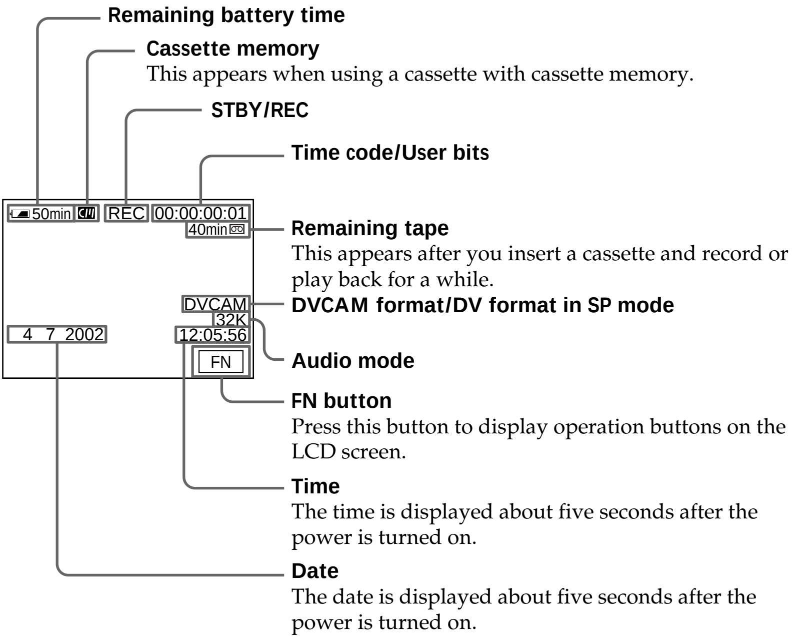
Picture in the mirror mode
The picture on the LCD screen is a mirror-image. However, the picture will be normal when recorded.

During recording in the mirror mode
FN appears mirror-reversed in the viewfinder.

When you press FN
The ☺ does not appear on the screen.

Indicators displayed in the recording

Indicators are not recorded on tapes.



Remaining battery time

Cassette memory
This appears when using a cassette with cassette memory.

STBY/REC

Time code/User bits

Remaining tape
This appears after you insert a cassette and record or play back for a while.

DVCAM format/DV format in SP mode

Audio mode

FN button
Press this button to display operation buttons on the LCD screen.

Time
The time is displayed about five seconds after the power is turned on.

Date
The date is displayed about five seconds after the power is turned on.

Remaining battery time indicator during recording
The remaining battery time indicator roughly indicates the continuous recording time. The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about one minute for the correct remaining battery time in minutes to be displayed.

Time code
The time code indicates the recording or playback time, “00:00:00:00” (hours : minutes : seconds : frames). You cannot rewrite only the time code. You can preset the time code. The time code can be preset or be reset during recording (p. 121).

On user bits display
You can display the user bits, pressing TC/U-BIT (p. 125).

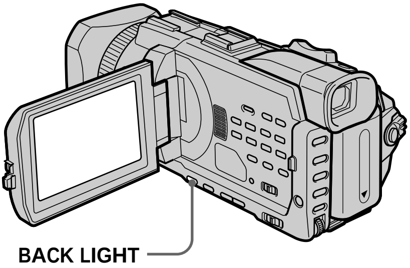
Remaining tape indicator
The indicator may not be displayed accurately depending on the tape.

Recording data
The recording data (date/time or various settings when recorded) are not displayed while recording. However, they are recorded automatically on the tape. To display the recording data, press DATA CODE on PAGE2 during playback. You can also use the Remote Commander for this operation (p. 43). When you want to display the date and time during shooting, set DATE REC to ON in the menu settings (p. 223). However, once you record with the date and time, you cannot erase them.

Shooting backlit subjects – BACK LIGHT

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT while the POWER switch is set to CAMERA or MEMORY.
The ▨ indicator appears on the screen. To cancel, press BACK LIGHT again.



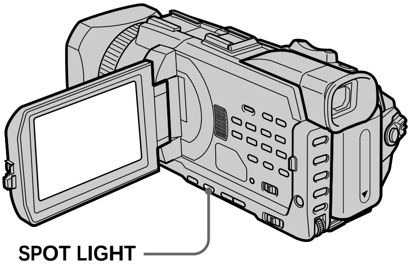
When shooting backlit subjects
If you press SPOT LIGHT, EXPOSURE or SPOT METER, the backlight function will be cancelled.

When you manually adjust the exposure
You cannot use the backlight function.

Shooting subjects lit by strong light – SPOT LIGHT

This function prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light, such as in the theatre.

Press SPOT LIGHT while the POWER switch is set to CAMERA or MEMORY.
The ☻ indicator appears on the screen. To cancel, press SPOT LIGHT again.



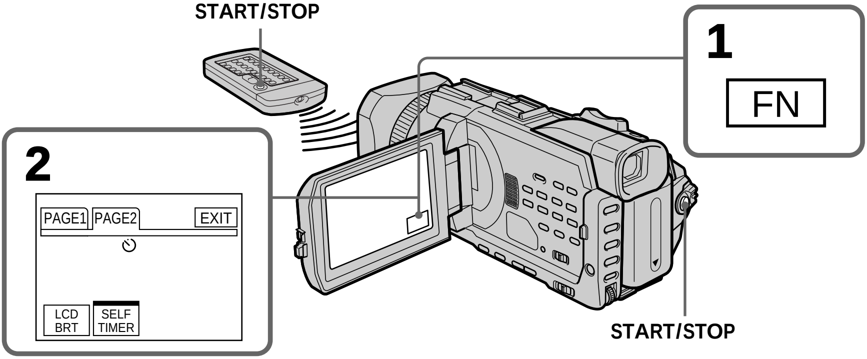
When shooting spotlighted subjects
If you press BACK LIGHT, EXPOSURE or SPOT METER, the spot light function will be cancelled.

When you manually adjust the exposure
You cannot use the spot light function.

Self-timer recording

Recording with the self-timer starts in 10 seconds automatically. You can also use the Remote Commander for this operation.

(1) In the standby, press FN and select PAGE2.
(2) Press SELFTIMER.
The ⏲ (self-timer) indicator appears on the screen.
(3) Press START/STOP.
The self-timer starts counting down from 10 with a beep. In the last two seconds of the countdown, the beep gets faster, then recording starts automatically.



To stop the count down

Press START/STOP.
To restart the countdown, press START/STOP again.

To cancel the self-timer

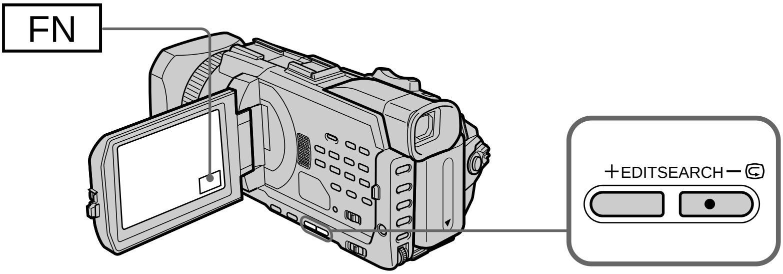
Press SELFTIMER so that the ⏲ (self-timer) indicator disappears from the screen while your camcorder is in the standby.

Note
The self-timer is automatically cancelled when:
– The self-timer recording is finished.
– The POWER switch is set to OFF (CHG) or VCR.

When the POWER switch is set to MEMORY
You can also record still images on a “Memory Stick” with the self-timer (p. 150).

Checking recordings – END SEARCH / EDITSEARCH / Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.



END SEARCH

You can go to the end of the recorded section after you record.

(1) In the standby, press FN to display PAGE1.
(2) Press END SCH.
The last five seconds of the recorded section are played back and your camcorder returns to the standby. You can monitor the sound from the speaker or headphones.

To return to FN

Press EXIT.

To stop searching

Press END SCH again.

End search
When you use a cassette without cassette memory, the end search function does not work once you eject the cassette after you have recorded on the tape. If you use a cassette with cassette memory, the end search works even once you eject the cassette.

If a tape has a blank portion between recorded portions
The end search may not work correctly.

EDITSEARCH

You can search for the next recording start point.

Hold down the EDITSEARCH in the standby. The recorded portion is played back.

– ⊜ : To go backward
+ : To go forward

Release EDITSEARCH to stop playback. If you press START/STOP, recording begins from the point you released EDITSEARCH. You cannot monitor the sound.

Rec Review

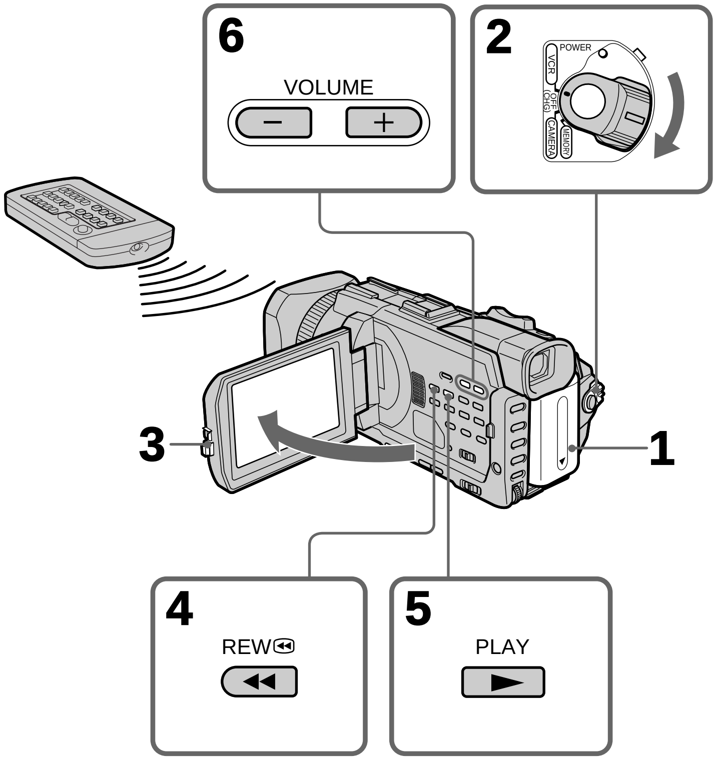
You can check the last recorded section.

Press the –↪ side of EDITSEARCH momentarily in the standby.
The section you have stopped most recently will be played back for a few seconds, and then your camcorder will return to the standby. You can monitor the sound from the speaker or headphones.

Playing back a tape

You can monitor the playback picture on the screen. If you close the LCD panel, you can monitor the playback picture in the viewfinder. You can control playback using the Remote Commander supplied with your camcorder.

(1) Prepare the power supply and insert the recorded tape.
(2) Set the POWER switch to VCR while pressing the small green button.
(3) Open the LCD panel while pressing OPEN.
(4) Press ◀◀ to rewind the tape.
(5) Press ▶ to start playback.
(6) To adjust the volume, press either of the two buttons on VOLUME.
– : To turn down
+ : To turn up
When you close the LCD panel, sound is muted.

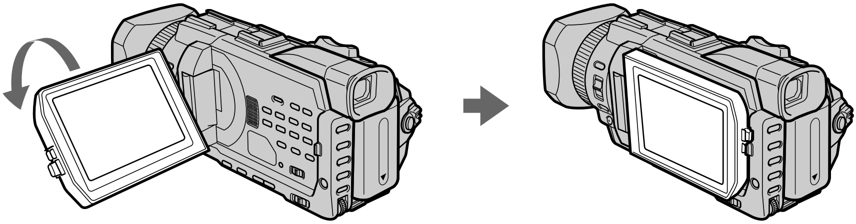


To stop playback

Press ■.

When monitoring on the LCD screen

You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out.



If you leave the power on for a long time

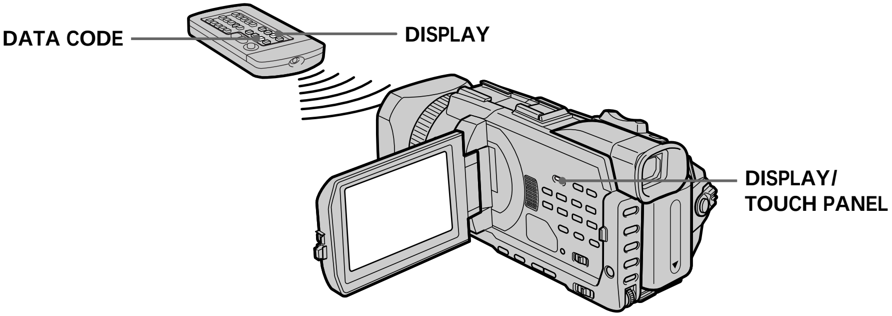
Your camcorder gets warm. This is not a malfunction.

When you open or close the LCD panel

Make sure that the LCD panel is set vertically.

To display the screen indicators – Display function

Press DISPLAY/TOUCH PANEL on your camcorder or DISPLAY on the Remote Commander supplied with your camcorder. The indicators disappear on the screen. To make the indicators appear, press DISPLAY/TOUCH PANEL or DISPLAY again.

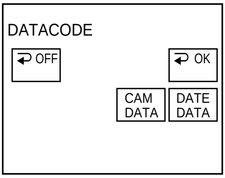


About date/time and various settings

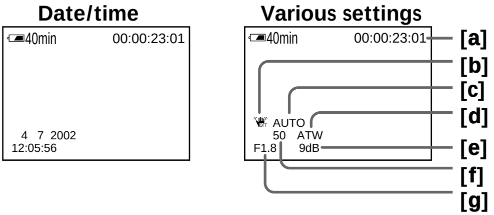
Your camcorder automatically records not only images on the tape but also the recording data (date/time or various settings when recorded) **(data code)**.
Follow the steps below to display the data code using the touch panel or the Remote Commander.

Using the touch panel

(1) Set the POWER switch to VCR, then play back a tape.
(2) Press FN and select PAGE2.
(3) Press DATA CODE.



(4) Select CAM DATA or DATE DATA, then press ↩ OK.
(5) Press EXIT.



[a] Time code
[b] SteadyShot OFF
[c] Exposure mode
[d] White balance
[e] Gain
[f] Shutter speed
[g] Aperture value

Using the Remote Commander

Press DATA CODE on the Remote Commander in the playback.
The display changes as follows when you press the DATA CODE on the Remote Commander:
date/time → various settings (SteadyShot, exposure, white balance, gain, shutter speed, aperture value) → no indicator

To not display various settings

Set DATA CODE to DATE in the menu settings (p. 222).
The display changes as follows when you press DATA CODE :
date/time ←→ no indicator

Various settings

Various settings are your camcorder’s information when you have recorded. In the recording, the various settings will not be displayed.

When you use the data code, bars (-- -- --) appear if:

– A blank portion of the tape is being played back.
– The tape is unreadable due to tape damage or noise.
– The tape was recorded by a camcorder without the date and time set.

Data code

When you connect your camcorder to the TV, the data code appears on the TV screen.

Remaining battery time indicator during playback

The indicator indicates the approximate continuous playback time. The indicator may not be correct, depending on the conditions in which you are playing back. When you close the LCD panel and open it again, it takes about one minute for the correct remaining battery time to be displayed.

Various playback modes

To operate video control buttons, set the POWER switch to VCR.

To play back pause (viewing a still picture)

Press ❚❚ during playback. To resume normal playback, press ► or ❚❚.

To advance the tape

Press ►► in the stop mode. To resume normal playback, press ►.

To rewind the tape

Press ◄◄ in the stop mode. To resume normal playback, press ►.

To change the playback direction

Press < on the Remote Commander during playback to reverse the playback direction. To resume normal playback, press ►.

To locate a scene monitoring the picture (picture search)

Keep pressing ◄◄ or ►► during playback. To resume normal playback, release the button.

To monitor high-speed pictures while advancing or rewinding the tape (skip scan)

Keep pressing ◄◄ while rewinding or ►► while advancing the tape. To resume rewinding or advancing, release the button.

To view the picture at slow speed (slow playback)

Press ❚► on the Remote Commander during playback. For slow playback in the reverse direction, press < , then press ❚► on the Remote Commander. To resume normal playback, press ►.

To view pictures at double speed

Press ×2 on the Remote Commander during playback. For double speed playback in the reverse direction, press < , then press ×2 on the Remote Commander. To resume normal playback, press ►.

To view pictures frame-by-frame

Press ❚❚► on the Remote Commander in the playback pause. For frame-by-frame playback in the reverse direction, press ◄❚❚. To resume normal playback, press ►.

To search the last scene recorded (END SEARCH)

Press FN, then press END SCH in the stop mode. The last five-second recorded portion is played back and then stopped.

In the various playback modes

- Sound is muted.
- The previous picture may remain as a mosaic image during playback.

When the playback pause lasts for five minutes

Your camcorder automatically enters the stop mode. To resume playback, press ►.

Slow playback

The slow playback can be performed smoothly on your camcorder. However, this function does not work for an output signal through the i DV Interface.

When you play back a tape in reverse

Horizontal noise may appear at the centre, or the top and bottom of the screen. This is not a malfunction.

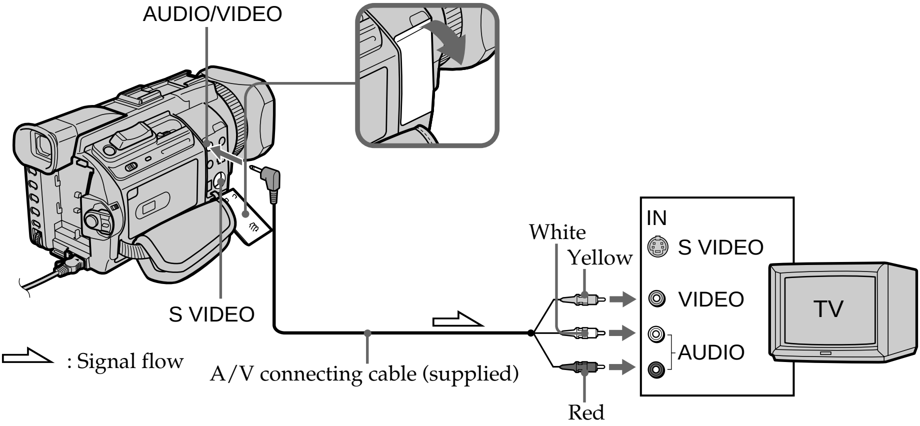
Note on DV-formatted tapes

You can play back DV-formatted tapes on this camcorder if the tape is recorded in SP mode. "DV SP" appears on the screen during playback.
You cannot play back DV-formatted tapes recorded in LP mode.

Viewing the recording on TV

Connect your camcorder to your TV with the A/V connecting cable supplied with your camcorder to watch playback picture on the TV screen. You can operate the video control buttons in the same way as when you monitor playback pictures on the screen. When monitoring playback pictures on the TV screen, we recommend that you power your camcorder from a wall socket using the AC power adaptor (p. 19). Refer to the operating instructions of your TV.

Open the jack cover. Connect your camcorder to the TV with the A/V connecting cable supplied with your camcorder. Then, set the TV/VCR selector on the TV to VCR.



If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A/V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

If your TV or VCR is a monaural type

Connect the yellow plug of the A/V connecting cable to the video input jack and the white or the red plug to the audio input jack on the VCR or the TV. If you connect the white plug, the sound is L (left) signal. If you connect the red plug, the sound is R (right) signal.

If your TV has an S video jack

Pictures can be reproduced more faithfully by using an S video cable (optional). With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable. Connect the S video cable (optional) to the S VIDEO jacks on both your camcorder and the TV.
This connection produces higher quality DVCAM/DV format pictures.

To display the screen indicators on TV

Set DISPLAY to V-OUT/LCD in the menu settings (p. 223).
Then, press DISPLAY/TOUCH PANEL on your camcorder. To turn the screen indicators off, press DISPLAY/TOUCH PANEL on your camcorder again.

Recording still images on a “Memory Stick” during tape recording

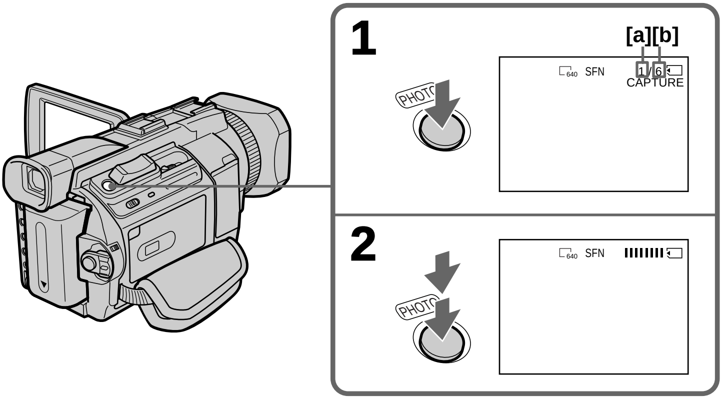
You can record still images on a “Memory Stick” in the tape recording or tape recording standby. You can also record still images on a tape (p. 51).

Before operation

- Insert a “Memory Stick” into your camcorder.
- Set PHOTO REC in 📷 to MEMORY in the menu settings (The default setting is MEMORY).

(1) In the standby, keep pressing PHOTO lightly until a still image appears. The CAPTURE indicator appears. Recording does not start yet. To change from the selected still image to another image, release PHOTO once and press it lightly again.

(2) Press PHOTO deeper.
Recording is complete when the bar scroll indicator disappears.
The image while pressing the button deeply is recorded on the “Memory Stick.”



[a] : Number of the recorded images
[b] : Approximate number of the images that can be recorded on the “Memory Stick”

Notes

- When recording a still image, do not shake your camcorder. If you do so, the image may flutter.
- You cannot record still images on a “Memory Stick” during following operations (The 📷⃠ indicator flashes on the screen.):
  - Wide mode
  - Fader
  - Digital effect
  - MEMORY MIX

“Memory Stick”

For details, see page 135 for more information.

Image size of still images

Image size is automatically set to 640 × 480.
When you want to record still images in different size, use the Memory Photo recording (p. 144).

When the POWER switch is set to CAMERA

You cannot select image quality.
The image quality when you set the POWER switch to MEMORY is used. (The default setting is SUPER FINE).

During and after recording still images on a “Memory Stick”

Your camcorder continues recording on tape.

When you press PHOTO on the Remote Commander

Your camcorder immediately records the image that is on the screen when you press the button.

To record still images on a “Memory Stick” during tape recording

You cannot check an image on the screen by pressing PHOTO lightly. The image when you press PHOTO will be recorded on the “Memory Stick.”

To record images with higher quality

We recommend that you use the Memory Photo recording (p. 144).

Title

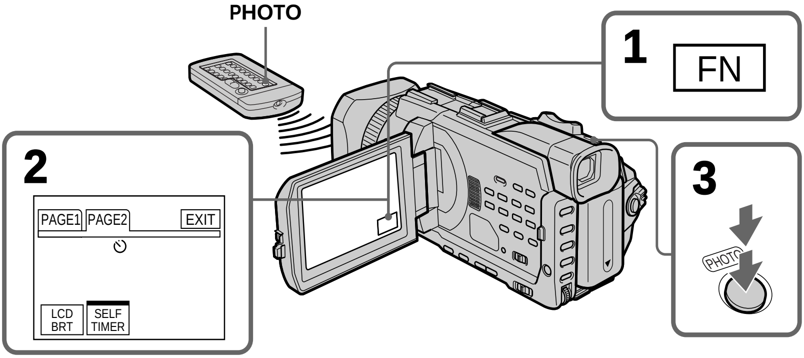
The title cannot be recorded.

Self-timer recording

You can record still images on a “Memory Stick” with the self-timer. You can also use the Remote Commander for this operation.

Before operation
- Insert a “Memory Stick” into your camcorder.
- Set PHOTO REC in 📷 to MEMORY in the menu settings. (The default setting is MEMORY.)

(1) In the standby, press FN and select PAGE2.
(2) Press SELFTIMER.
The ⏱ (self-timer) indicator appears on the screen.
(3) Press PHOTO deeper.
The self-timer starts counting down from 10 with a beep. In the last two seconds of the countdown, the beep gets faster, then the recording starts automatically.



To cancel the self-timer

Press SELFTIMER so that the ⏱ (self-timer) indicator disappears from the screen while your camcorder is in the standby. You cannot stop the count down.

Note

The self-timer is automatically cancelled when:
– The self-timer is finished.
– The POWER switch is set to OFF (CHG) or VCR.

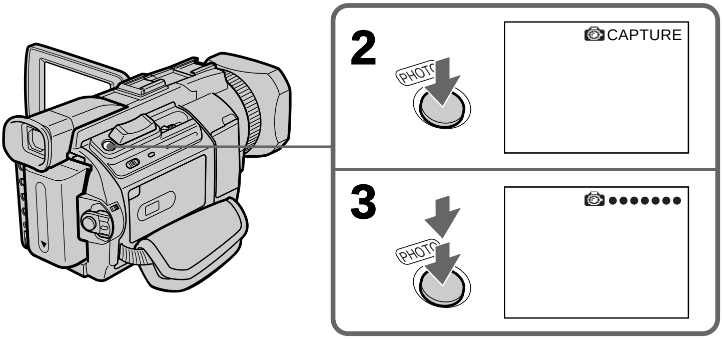
Self-timer recording

You can operate the self-timer recording only during the recording standby.

Recording still images on a tape – Tape Photo recording

You can record about 340 images in the DVCAM format on a 40-minute DVCAM cassette and about 510 images in the DV format on a 60-minute DV cassette.

(1) In the standby, set PHOTO REC in 📷 to TAPE in the menu settings.
(2) Keep pressing PHOTO lightly until a still image appears.
The CAPTURE indicator appears. Recording does not start yet.
To change from the selected still image to another image, release PHOTO once and press it lightly again.
(3) Press PHOTO deeper.
The still image on the screen is recorded for about seven seconds. The sound during those seven seconds is also recorded.
The still image is displayed on the screen until recording is completed.



Recording images with self-timer

(1) Set PHOTO REC in 📷 to TAPE in the menu settings (p. 215).
(2) Follow steps 1 and 3 on page 50.

Notes

- During tape photo recording, you cannot change the mode or setting.
- When recording a still image, do not shake your camcorder. If you do so, the image may flutter.
- You cannot use PHOTO during the following operations: (The 📷⊘ indicator flashes on the screen.)
  – Fader
  – Digital effect

If you record a moving subject with the tape photo recording

When you play back the still image on other equipment, the image may flutter. This is not a malfunction.

When you press PHOTO on the Remote Commander

Your camcorder immediately records the image that is on the screen when you press the button.

To use the tape photo recording during the tape recording

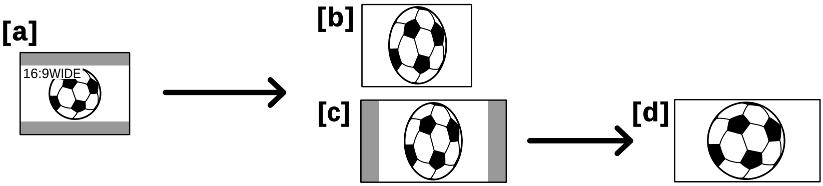
You cannot check an image on the screen by pressing PHOTO lightly. Press PHOTO deeper. The still image is then recorded for about seven seconds, and your camcorder returns to the standby.

To record clear still images with little unsteadiness

We recommend that you record on a “Memory Stick” using the Memory Photo recording.

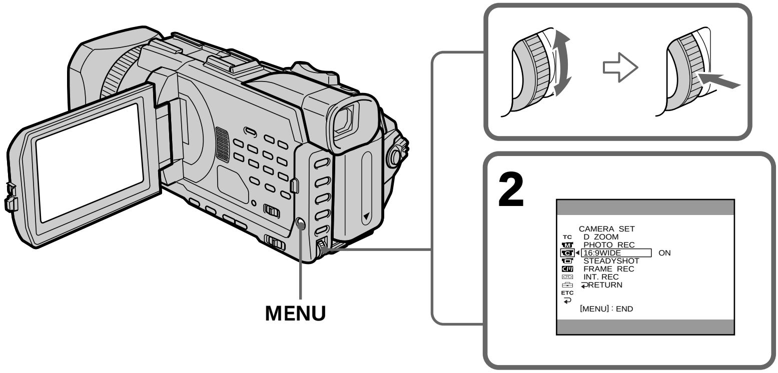
Using the wide mode

You can record a 16:9 wide picture to watch on a 16:9 wide-screen TV (16:9WIDE). Black bands appear on the screen during recording in 16:9WIDE mode **[a]**. The picture during playback on a normal TV **[b]** or on a wide-screen TV **[c]** is compressed in the longwise direction. If you set the screen mode of the wide-screen TV to the full mode, you can watch pictures of normal images **[d]**.



(1) In the standby, press MENU, then turn the SEL/PUSH EXEC dial to select 16:9WIDE in 🅲, then press the dial. (p. 215)

(2) Turn the SEL/PUSH EXEC dial to select ON, then press the dial.



```
    CAMERA  SET
TC   D  ZOOM
     PHOTO  REC
  ◀ 16:9WIDE        ON
     STEADYSHOT
     FRAME  REC
     INT. REC
    ↩RETURN
ETC
↩
    [MENU] : END
```

To cancel the wide mode

Set 16:9WIDE to OFF in the menu settings.

In the wide mode

You cannot select the following functions:

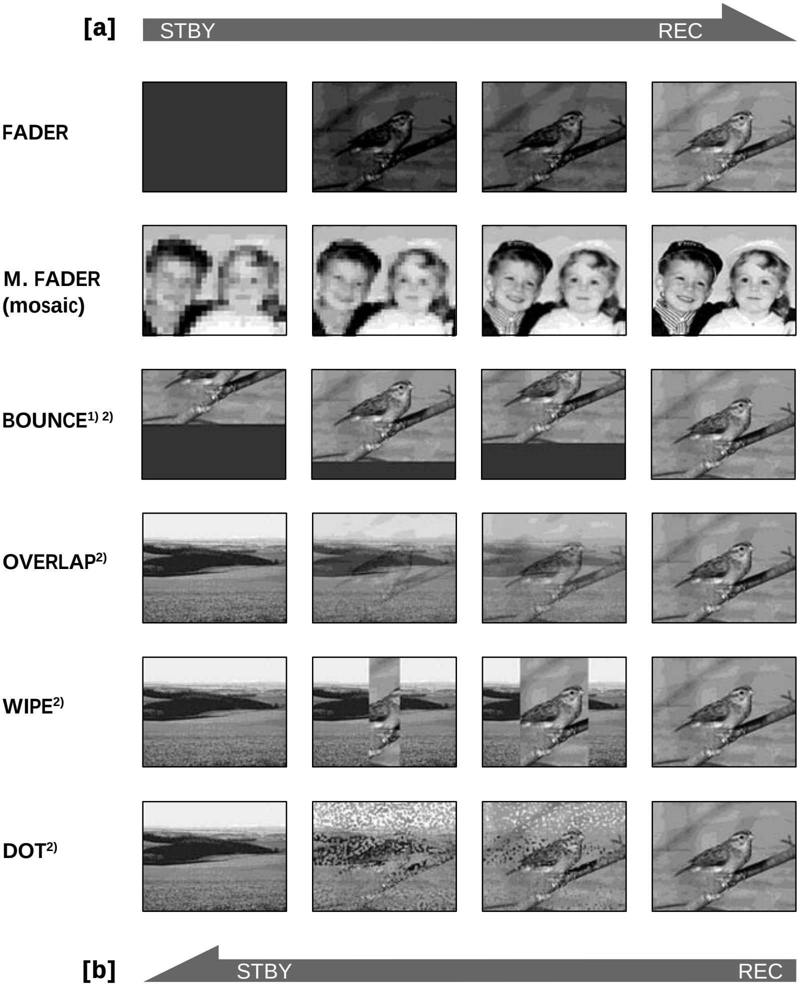
- Recording still images on a “Memory Stick” in the tape recording or recording standby
- BOUNCE
- OLD MOVIE

During recording

You cannot select or cancel the wide mode. When you cancel the wide mode, set your camcorder to the standby and then set 16:9WIDE to OFF in the menu settings.

Using the fader

You can fade in or out to give your recording a more professional appearance.


[a]
STBY
REC
FADER
M. FADER
(mosaic)
BOUNCE1) 2)
OVERLAP2)
WIPE2)
DOT2)
[b]
STBY
REC

MONOTONE

When fading in, the picture gradually changes from black-and-white to colour.
When fading out, the picture gradually changes from colour to black-and-white.

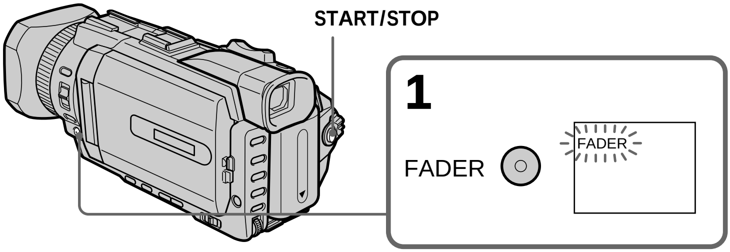
1) You can use the bounce when D ZOOM is set to OFF in the menu settings.
2) Fade in only.

(1) When fading in [a]
In the standby, press FADER until the desired fader indicator flashes.
When fading out [b]
In the recording, press FADER until the desired fader indicator flashes.
The indicator changes as follows:

→ FADER → M. FADER → BOUNCE → MONOTONE
(no indicator) ← DOT ← WIPE ← OVERLAP ←

The last selected fader is indicated first of all.

(2) Press START/STOP. The fader indicator stops flashing.
After fade in/out ends, your camcorder automatically returns to the normal mode.



To cancel the fader

Before pressing START/STOP, press FADER until the indicator disappears.

Note

You cannot use the following functions while using the fader. Also, you cannot use the fader while using the following functions:
- Recording still images on a “Memory Stick” in the tape recording or recording standby
- Tape photo recording
- Digital effect
- Interval recording
- Frame recording

When you select OVERLAP, WIPE, or DOT

Your camcorder automatically stores the image recorded on a tape. While the image is being stored, the indicators flash fast, and the playback picture disappears. At this stage, the picture may not be recorded clearly, depending on the tape condition.

When you set the POWER switch to MEMORY
You cannot use the fader.

While using BOUNCE, you cannot use the following functions:
– Zoom
– Shutter speed adjustment
– Exposure
– Flexible Spot meter
– Focus manually
– Spot Focus

Note on BOUNCE
The BOUNCE indicator does not appear in the following mode or functions:
– When D ZOOM is activated in the menu settings
– Wide mode
– PROGRAM AE

Using special effects – Digital effect

You can add special effects to recorded pictures using the various digital functions. Sound is recorded normally.

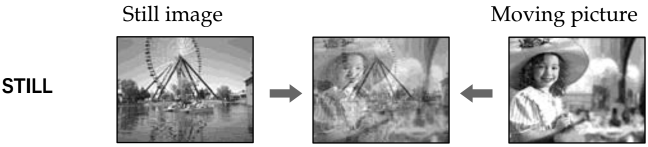
STILL
You can record a still image so that it is superimposed on a moving picture.

FLASH (FLASH MOTION)
You can record still images successively at constant intervals.

LUMI. (LUMINANCEKEY)
You can swap a brighter area in a still image with a moving picture.

TRAIL
You can record the picture so that an incidental image like a trail is left.

OLD MOVIE
You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the wide mode to ON and picture effect to SEPIA, and sets the appropriate shutter speed.



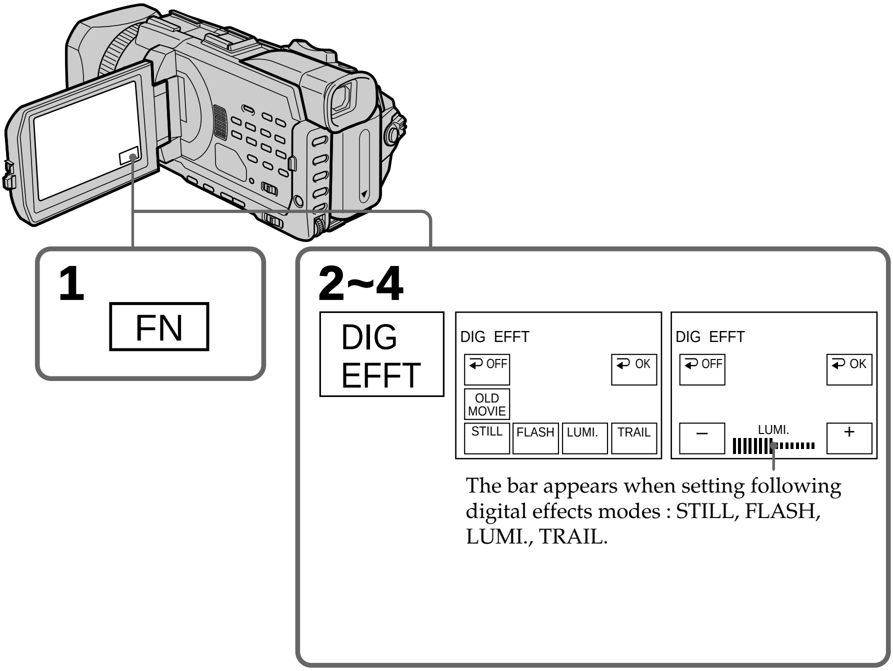
Still image
Moving picture
LUMI.

(1) Press FN to display PAGE1 while the POWER switch is set to CAMERA.
(2) Press DIG EFFT. The screen to select a desired digital effect appears.
(3) Press a desired mode. In the STILL and LUMI. modes, the still image is stored in memory.
(4) Press –/+ to adjust the effect.
–: To reduce the effect
+: To increase the effect

Items to be adjusted

STILL	The rate of the still image you want to superimpose on the moving picture
FLASH	The interval of frame by frame playback
LUMI.	The colour scheme of the area in the still image which is to be swapped with a moving picture
TRAIL	The vanishing time of the incidental image
OLD MOVIE	No adjustment necessary

(5) Press ↩ OK to return to PAGE1.



The bar appears when setting following digital effects modes : STILL, FLASH, LUMI., TRAIL.

To return to FN

Press EXIT.

To cancel the digital effect

Press ↩ OFF to return to PAGE1.

Notes

- The following functions do not work during digital effect:
  - Recording still images on a "Memory Stick" in the tape recording or recording standby
  - Tape photo recording
  - Fader
  - Shutter speed (1/25 or slower) adjustment
- The following functions do not work in the old movie:
  - Wide mode
  - PROGRAM AE
  - Shutter speed adjustment

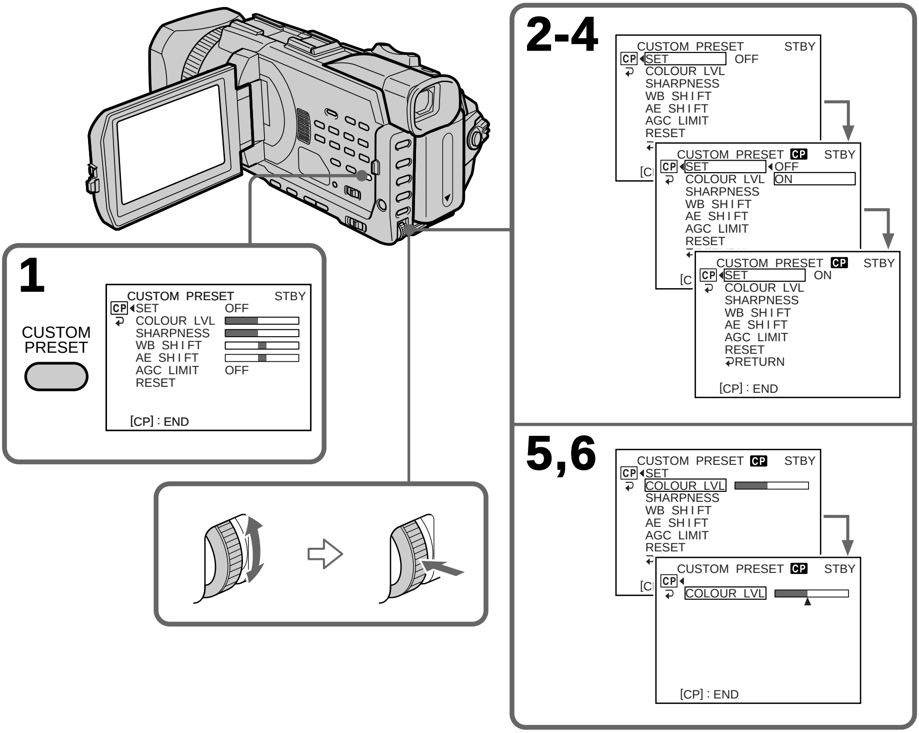
When you set the POWER switch to OFF (CHG)

Digital effect is automatically cancelled.

Presetting the adjustment for picture quality – Custom preset

You can preset the camcorder to record the picture with the desired picture quality. When presetting, adjust the picture by shooting a subject and checking the picture displayed on a TV (p. 47).

(1) Press CUSTOM PRESET to display the CUSTOM PRESET menu while the POWER switch is set to CAMERA or MEMORY.
(2) Press the SEL/PUSH EXEC dial.
(3) Turn the SEL/PUSH EXEC dial to select SET, then press the dial.
(4) Turn the SEL/PUSH EXEC dial to select ON, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
(6) Turn the SEL/PUSH EXEC dial to adjust the selected item, then press the dial.
(7) Press CUSTOM PRESET.
The CUSTOM PRESET menu disappears and the indicator CP appears on the screen.


1
CUSTOM PRESET
CUSTOM PRESET STBY
CP SET OFF
COLOUR LVL
SHARPNESS
WB SHIFT
AE SHIFT
AGC LIMIT OFF
RESET
[CP] : END
2-4
CUSTOM PRESET STBY
CP SET OFF
COLOUR LVL
SHARPNESS
WB SHIFT
AE SHIFT
AGC LIMIT
RESET
CUSTOM PRESET CP STBY
CP SET OFF
COLOUR LVL ON
SHARPNESS
WB SHIFT
AE SHIFT
AGC LIMIT
RESET
CUSTOM PRESET CP STBY
CP SET ON
COLOUR LVL
SHARPNESS
WB SHIFT
AE SHIFT
AGC LIMIT
RESET
RETURN
[CP] : END
5,6
CUSTOM PRESET CP STBY
CP SET
COLOUR LVL
SHARPNESS
WB SHIFT
AE SHIFT
AGC LIMIT
RESET
CUSTOM PRESET CP STBY
CP
COLOUR LVL
[CP] : END

Items to be adjusted

Item	Meaning	Adjustment value
COLOUR LVL	Colour intensity	Decreases colour intensity ←→ Increases colour intensity
SHARPNESS	Sharpness	Softer ←→ Sharper
WB SHIFT	White balance	Bluish ←→ Reddish
AE SHIFT	Brightness	Dim ←→ Brighten
AGC LIMIT	Auto Gain-limit	6 dB/12 dB/OFF
RESET	Sets items above to the default settings.	

To cancel using the custom preset

Select OFF in step 4. The setting is still maintained at this moment. To return to the standard setting, select RESET in step 6.

To check the custom preset setting

Press CUSTOM PRESET while the POWER switch is set to CAMERA or MEMORY. The custom preset setting appears on the screen.

When you preset the desired picture quality in CAMERA or MEMORY

The preset is only available in each mode you preset. If you want to use a preset both in CAMERA and MEMORY, you have to preset in each mode.

When adjusting the exposure manually

AE SHIFT cannot be selected.

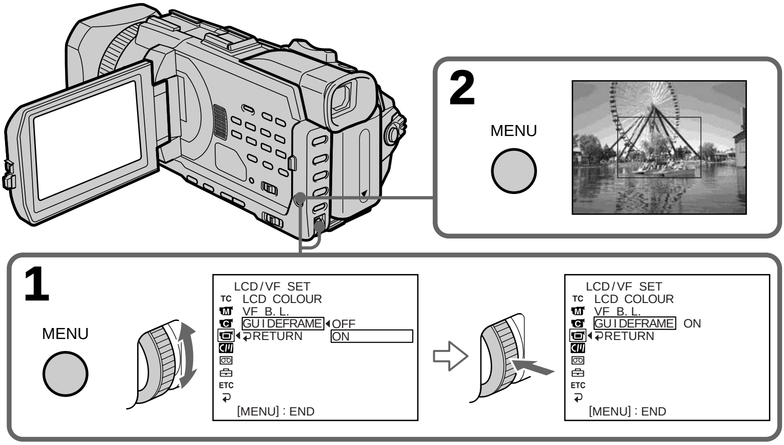
About the AGC Limit

When adjusting the exposure manually, the level of the gain is up to 18 dB (OFF).

Using the guide frame

You can easily make the picture be on a horizontal line using the guide frame. The guide frame is not recorded in the tape or the “Memory Stick.”

(1) Set GUIDE FRAME in ▣ to ON in the menu setting while the POWER switch is set to CAMERA or MEMORY. (p216)
(2) Press MENU to erase the menu display. The guide frame is displayed on the screen.


2
MENU
1
MENU
LCD/VF SET
LCD COLOUR
VF B. L.
GUIDEFRAME OFF
RETURN ON
[MENU] : END
LCD/VF SET
LCD COLOUR
VF B. L.
GUIDEFRAME ON
RETURN
[MENU] : END

To clear the guide frame

Set GUIDE FRAME to OFF in the menu setting or simply press DISPLAY/TOUCH PANEL.

Note

The guide frame indicates only a rough level. The size and position of the guide frame do not affect the setting of the camcorder.

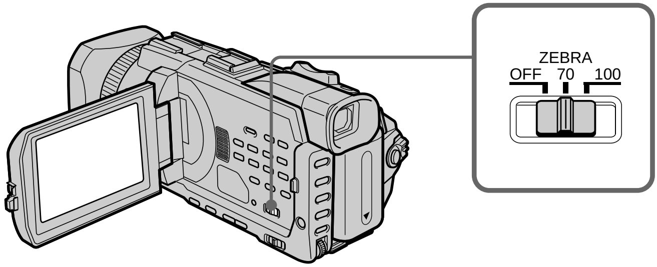
If you set GUIDEFRAME to ON

The other indicators are also displayed on the screen.

Shooting with the zebra pattern

You can set the camcorder to display a zebra pattern (diagonal stripes) in the portion of the picture on the screen with a subject whose brightness exceeds a certain level. You can check the picture level of a subject by displaying the zebra pattern. Use the zebra pattern as a guide for adjusting the exposure so that you can get the desired picture. The zebra pattern is not recorded in the tape or the "Memory Stick."

Set the ZEBRA selector to 70 or 100 while the POWER switch is set to CAMERA or MEMORY.



Setting	Meaning
70	The zebra pattern appears in the portion of the picture on the screen with a subject whose brightness is about 70 IRE.
100	The zebra pattern appears in the portion of the picture on the screen with a subject whose brightness exceeds more than 100 IRE.
OFF	The zebra pattern does not appear on the screen.

To erase the zebra pattern

Set the ZEBRA selector to OFF.

When the ZEBRA selector is set to 100

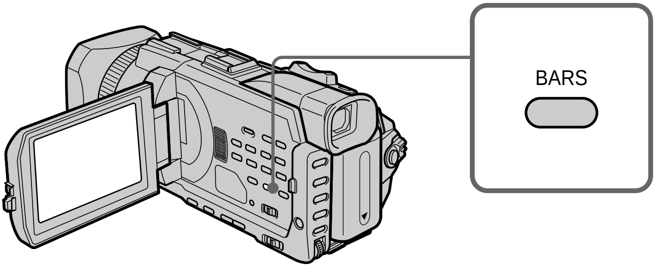
The portion of the picture where zebra pattern appears is an area of high brightness and overexposure.

Using the colour bar

If you press BARS, the colour bar is displayed on the screen.
Use the colour bar in the following cases:

- At the beginning of the recording, the recorded images may be unstable. To avoid this, record the colour bar first and start recording the desired images when the captured images become clear.
- To adjust screen colour.

Press BARS while the POWER switch is set to CAMERA.
If you press BARS again the colour bar disappears.



When you adjust colour on the screen
Connect your camcorder to the TV (p. 47) and adjust image colour on the TV screen.

While the colour bar is displayed
The following functions do not work. However, the settings before the colour bar is displayed are retained.

- Backlight
- Spot light
- Digital effect
- PROGRAM AE
- Shutter speed adjustment
- White balance adjustment
- Exposure
- MEMORY MIX

While the colour bar is displayed during Digital effect or MEMORY MIX
These effects cannot be added on the colour bar.

While using the fader
The colour bar cannot be displayed.

Shooting with manual adjustment

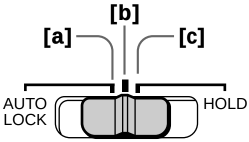
AUTO LOCK selector

Set the selector as shown below to maintain or release the settings of the functions. Manually adjusted functions are retained even if you set the AUTO LOCK selector to AUTO LOCK.

AUTO LOCK [a]
Select this position to lock the PROGRAM AE, Shutter speed, White balance, Exposure and Flexible spot meter functions in order to make these function automatically adjusted. We recommend that you set the AUTO LOCK selector to AUTO LOCK if you use the video flash light (optional).

AUTO LOCK release [b]
Select this position for setting the functions manually.

HOLD [c]
Select AUTO LOCK release [b], and set the functions manually. Select this position [c] to maintain the settings.



Using the PROGRAM AE

You can select the PROGRAM AE (Auto Exposure) to suit your specific shooting requirements.

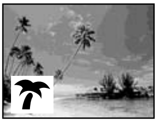
Soft portrait
This mode brings out the subject while creating a soft background for subjects such as people or flowers.

Sports lesson
This mode minimises camera-shake on fast-moving subjects such as in tennis or golf.

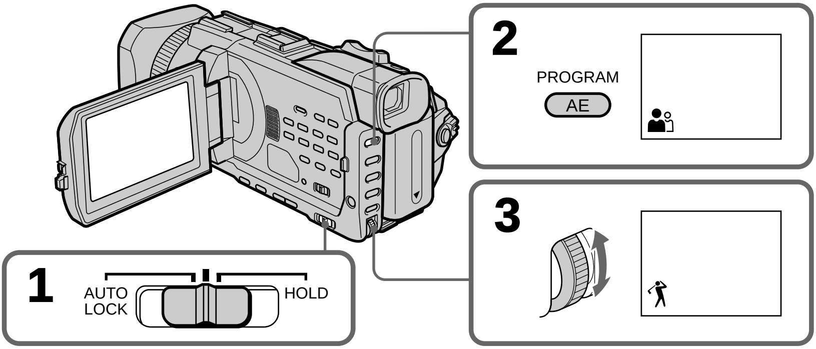
Beach & ski
This mode prevents people’s faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

Sunset & moon
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

Landscape
This mode is for when you are recording distant subjects such as mountains, and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.



(1) Set the AUTO LOCK selector to the centre (auto lock release) position while the POWER switch is set to CAMERA or MEMORY. (p. 66)
(2) Press PROGRAM AE.
(3) Turn the SEL/PUSH EXEC dial to select the desired mode.
The indicator changes as follows:
👤 ↔ 🏌 ↔ 🌴 ↔ 🌅 ↔ ▲



To cancel the PROGRAM AE

Set the AUTO LOCK selector to the AUTO LOCK or press PROGRAM AE.
The PROGRAM AE indicator disappears.

Notes

- Because your camcorder is set to focus only on subjects in the middle to far distance, you cannot take close-ups in the following modes:
  - Sports lesson
  - Beach & ski
- Your camcorder is set to focus only on distant subjects in the following modes:
  - Sunset & moon
  - Landscape
- The following functions do not work in the PROGRAM AE:
  - BOUNCE
  - OLD MOVIE
  - Shutter speed adjustment
  - Spot focus
- When you set the POWER switch to MEMORY, Sports lesson does not work. (The indicator flashes.)

The PROGRAM AE does not work

When you are recording images on a "Memory Stick" using the MEMORY MIX. (The indicator flashes.)

While WHT BAL is set to automatic adjustment

The white balance is adjusted even if the PROGRAM AE is selected.

You can adjust the following functions while using the PROGRAM AE

- Backlight
- Spot light
- Exposure
- Flexible Spot Meter

When recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp

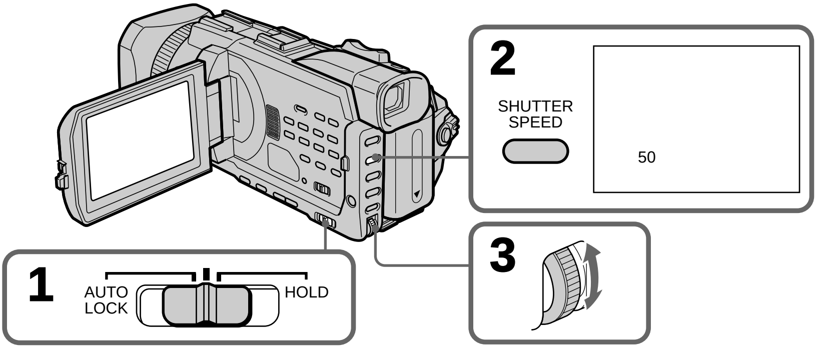
Flickering phenomenon which lights up or dims the screen, or the colour change may occur in the following modes. If this happens, turn the PROGRAM AE off.

- Soft portrait
- Sports lesson

Adjusting the shutter speed

You can adjust the shutter speed manually to suit your preference and with its shutter speed fixed.

(1) Set the AUTO LOCK selector to the centre (auto lock release) position while the POWER switch is set to CAMERA or MEMORY. (p. 66)
(2) Press SHUTTER SPEED. The shutter speed indicator appears on the screen.
(3) Turn the SEL/PUSH EXEC dial to select the desired speed. The available shutter speed ranges from 1/3 to 1/10000. As you turn the dial, the shutter speed changes as follows:
[CAMERA] 1/3 ←→ 1/6 ←→ 1/12 ←→ 1/25 ←→ ... ←→ 1/3500 ←→ 1/6000 ←→ 1/10000
[MEMORY] 1/50 ←→ 1/60 ←→ 1/100 ←→ 1/120 ←→ 1/150 ←→ 1/215 ←→ 1/300 ←→ 1/425
The shutter speed increases when a smaller number is selected. The size of the picture displayed on the screen also increases. Conversely, the shutter speed is slower when a larger number is selected. The picture displayed on the screen will thus decrease in size.



To return to automatic shutter speed mode

Set the AUTO LOCK selector to AUTO LOCK or press SHUTTER SPEED. The shutter speed indicator disappears.

Notes

- If you set the shutter speed value to 1/25 or slower, You cannot use the digital effect.
- The Shutter speed cannot be adjusted while you are using the following functions.
  – PROGRAM AE
  – Exposure
  – Flexible spot meter

If you press PROGRAM AE

Shutter speed adjusted manually returns to the automatic shutter speed.

When the shutter speed is fast

When shooting a bright subject, vertical lines may appear on the image, but this is not a malfunction. In such cases, set the shutter speed a little slower.

When shooting at slow shutter speed

At slow shutter speed, automatic focus may be lost. Use a tripod and adjust the focus manually.

When recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp

Flickering phenomenon which lights up or dims the screen, or the colour change may occur depending on the shutter speed.

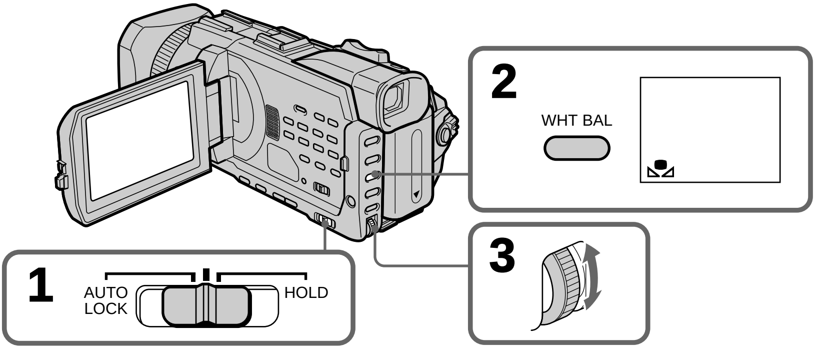
When the POWER switch is set to MEMORY

Shutter speeds available in the MEMORY mode are different from those in the CAMERA mode.
Even if you set the shutter speed faster than 1/425 or slower than 1/50 while the POWER switch is set to CAMERA, the shutter speed setting is automatically reset to 1/425 or 1/50 respectively if you set the POWER switch to MEMORY. Once you have set the POWER switch to MEMORY as the operation above, the shutter speed remains at 1/425 or 1/50 even if you set the POWER switch to CAMERA again.

Adjusting the white balance

White balance adjustment makes white subjects look white and allows more natural colour balance for camera recording. You can obtain better results by adjusting the white balance manually when lighting conditions change quickly or when recording outdoors: e.g., neon signs, fireworks.

(1) Set the AUTO LOCK selector to the centre (auto lock release) position while the POWER switch is set to CAMERA or MEMORY. (p. 66)
(2) Press WHT BAL.
(3) Turn the SEL/PUSH EXEC dial to select the appropriate white balance mode under the following conditions. As you turn the dial, the display changes as follows:
(One-push white balance) ←→ ☀ (Outdoor) ←→ 💡 (Indoor)



Indicator	Shooting conditions
(One-push white balance)	• Adjusting the white balance according to the light source. Follow the procedure described on the next page to adjust the setting again.
☀ **(Outdoor)**	• Recording a sunset/sunrise, just after sunset, just before sunrise, neon signs, or fireworks • Under a colour matching fluorescent lamp
💡 **(Indoor)**	• Lighting condition changes quickly • Too bright a place such as a photography studio • Under sodium lamps or mercury lamps

If you have selected ☗ in step 3

When you set the white balance to one-push white balance mode, the setting is locked and maintained even if lighting conditions change. You can achieve recording with natural colours without the image being affected by ambient light.

(1) Shoot a white object such as paper fully with ☗ displayed on the screen in the recording standby.

(2) Press the SEL/PUSH EXEC dial.
The ☗ indicator flashes quickly. When the white balance has been adjusted and stored in the memory, the indicator stops flashing. The setting will be maintained even after removing the power supply.

To return to automatic adjustment

Set the AUTO LOCK selector to AUTO LOCK or press WHT BAL. The white balance indicator disappears.

If the picture is being taken in a studio lit by TV lighting
We recommend that you record in the ☼ (indoor) mode.

When you record under fluorescent lamp
Use the automatic white balance mode or the ☗ (one-push white balance) mode. Your camcorder may not adjust the white balance correctly if you use the ☼ (indoor) mode.

Shooting when lighting conditions have changed
Readjust the white balance while the camcorder is in standby mode. White balance cannot be adjusted in the ☗ (One-push white balance) mode during recording.

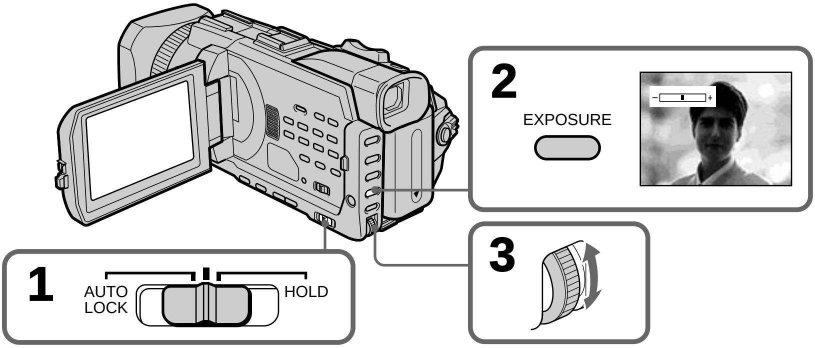
If the ☗ indicator does not stop flashing after you press the SEL/PUSH EXEC dial
The white balance cannot be set. Use the automatic mode for recording.

In automatic white balance mode
Point your camcorder at a white subject for about 10 seconds after setting the POWER switch to CAMERA to get a better adjustment when:
– You detach the battery for replacement.
– You bring your camcorder outdoors from the interior of a house, or vice versa.

Adjusting the exposure

You can manually adjust and set the exposure. Adjust the exposure manually in the following cases:
– When you need a fine adjustment for the backlit subjects.
– When shooting subjects and dark backgrounds.
– When recording dark pictures (e.g. night scenes) faithfully.

(1) Set the AUTO LOCK selector to the centre (auto lock release) position while the POWER switch is set to CAMERA or MEMORY. (p. 66)
(2) Press EXPOSURE. The exposure indicator appears.
(3) Turn the SEL/PUSH EXEC dial to adjust the brightness.



To return to automatic exposure

Set the AUTO LOCK selector to AUTO LOCK or press EXPOSURE. The exposure indicator disappears.

When you adjust the exposure manually, the following functions do not work:
– Backlight
– Spot light
– Shutter speed adjustment

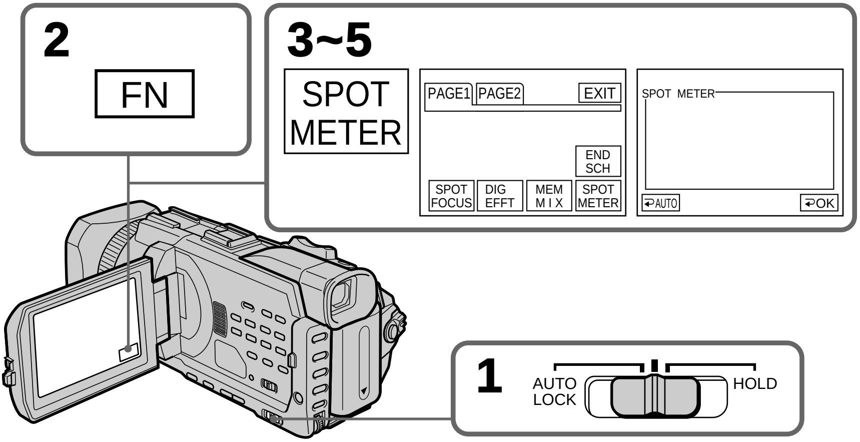
If you press PROGRAM AE
Your camcorder also returns to automatic exposure.

Using the spot light-metering – Flexible Spot Meter

You can take a picture with the appropriate exposure automatically for just the point you want to focus on and with its exposure fixed. Use the Flexible Spot Meter in the following cases:

– When adjusting the exposure manually to shoot the backlit subjects.
– When there is strong contrast between the subject and background such as with a subject that is on stage and lighted by a spotlight.

(1) Set the AUTO LOCK selector to the centre (auto lock release) position while the POWER switch is set to CAMERA or MEMORY. (p. 66)
(2) Press FN to display PAGE1.
(3) Press SPOT METER. The SPOT METER screen appears.
(4) Press the desired area in the frame on the LCD screen.
The SPOT METER indicator flashes on the LCD screen. The exposure of the point you selected is adjusted.
(5) Press ↩ OK to return to PAGE1.



To return to FN

Press EXIT.

To return to automatic exposure

Set the AUTO LOCK selector to AUTO LOCK or press ↩ AUTO to return to PAGE1.

The following functions do not work during Flexible Spot Meter

– Backlight
– Spot light
– Shutter speed adjustment

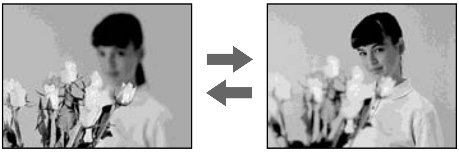
If you press PROGRAM AE

Your camcorder also returns to automatic exposure.

Focusing manually

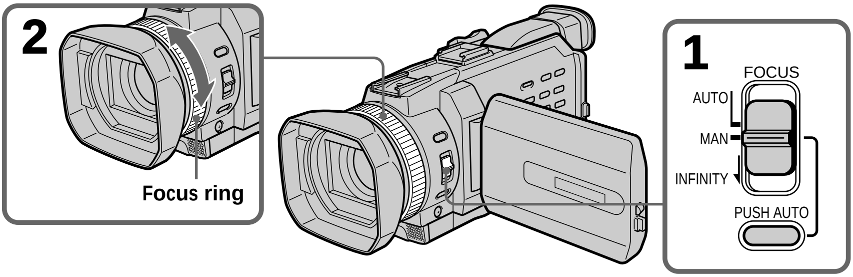
You can gain better results by manually adjusting the focus in the following cases. Normally, focus is automatically adjusted.

- The autofocus is not effective when shooting:
  - Subjects through glass coated with water droplets
  - Horizontal stripes
  - Subjects with little contrast with backgrounds such as walls and sky
- When you want to change the focus from a subject in the foreground to a subject in the background.
- Shooting a stationary subject when using a tripod.



(1) Set FOCUS to MAN while the POWER switch is set to CAMERA or MEMORY. The ☞ indicator appears.

(2) Turn the focus ring to sharpen focus.



To return to the autofocus

Set FOCUS to AUTO.

To record distant subjects

When you set FOCUS to INFINITY, the focus changes to a setting appropriate for an object in the far distance, and the ▲ indicator appears. When you release FOCUS, your camcorder returns to the manual focus. Use this mode when your camcorder focuses on near objects even though you are trying to shoot a distant object.

To shoot with auto focusing momentarily

Press PUSH AUTO.
The auto focus functions while you are pressing PUSH AUTO.
Use this button to focus on one subject and then another with smooth focusing.
When you release PUSH AUTO, manual focusing resumes.

To focus precisely

It is easier to focus on subjects if you adjust the zoom to shoot at the “W” (wide-angle) after focusing at the “T” (telephoto) position.

When you shoot close to the subject

Focus at the end of the “W” (wide-angle) position.

☞ changes as follows:

▲ when recording a distant subject
👤 when the subject is too close to focus on

Focal distance information is displayed for about three seconds on the screen in the following cases:

– When switching the focus adjustment mode from autofocus to manual.
– When turning the focus ring.

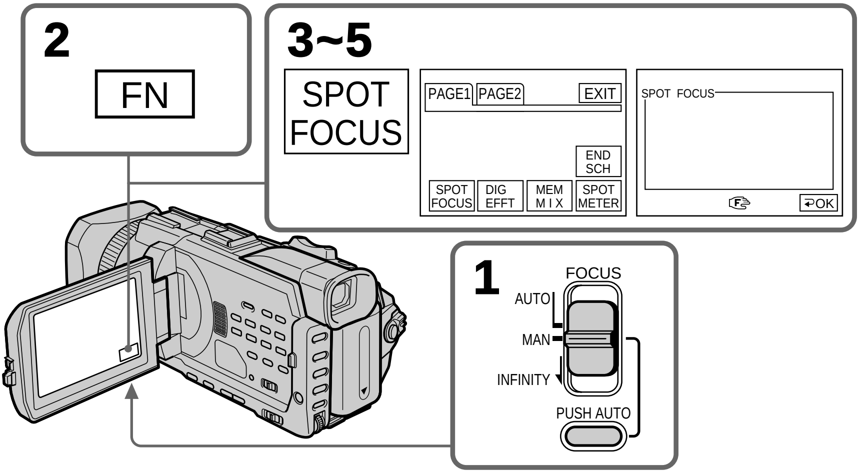
Focal distance information

– This information aids focusing if it is not easy to focus on the subject, for example, when recording in the dark. Use this information as a rough guide to get a sharp focus.
– You cannot get correct information if you have attached a conversion lens (optional) to your camcorder.

Using the spot focus – Spot Focus

You can take a picture with the appropriate focus automatically for just the point you want to focus on and with its focus fixed.

(1) Set FOCUS to MAN while the POWER switch is set to CAMERA or MEMORY.
(2) Press FN to display PAGE1.
(3) Press SPOT FOCUS. The SPOT FOCUS screen appears.
(4) Press the desired area in the frame on the LCD screen.
The SPOT FOCUS indicator flashes on the LCD screen. The spot focus of the point you selected is adjusted.
(5) Press ↩ OK to return to PAGE1.


2
FN
3~5
SPOT FOCUS
PAGE1
PAGE2
EXIT
END SCH
SPOT FOCUS
DIG EFFT
MEM MIX
SPOT METER
SPOT FOCUS
↩OK
1
FOCUS
AUTO
MAN
INFINITY
PUSH AUTO

To return to FN

Press EXIT.

To return to the autofocus

Set FOCUS to AUTO.

When Using PROGRAM AE
Spot focus do not work.

Focal distance information
It is not displayed on the screen.

Adjusting recording level manually – Sound recording level

You can adjust the recording sound level. Items to be set differ depending on whether you use the XLR adaptor or the built-in microphone. We recommend using headphones to monitor the sound when you adjust it.

Adjusting the recording level of the XLR adaptor

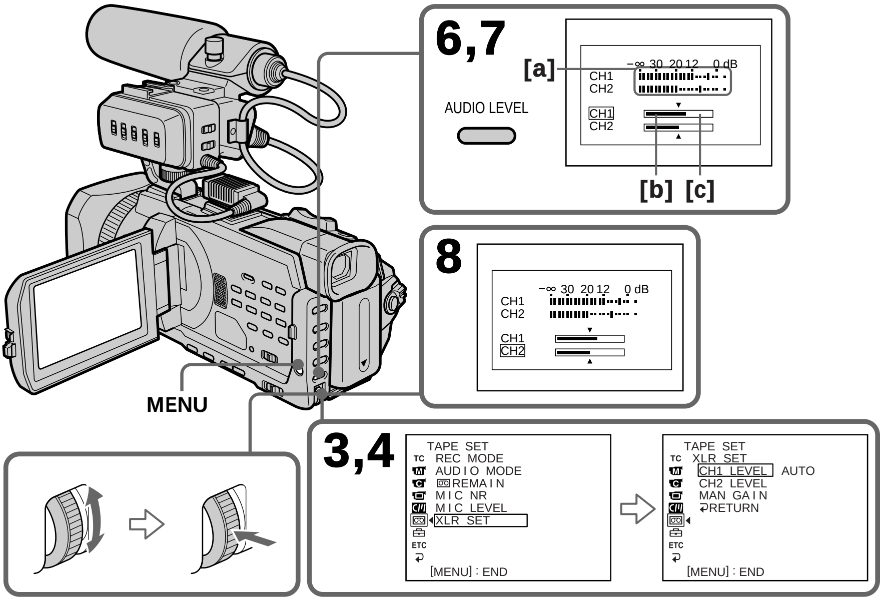
(1) Install the supplied XLR adaptor. Follow steps 1 and 2 on page 29.
(2) Connect the plug of the supplied or the optional microphone to the INPUT1 or INPUT2 connector.
(3) Select XLR SET in 📼 in the menu setting while the POWER switch is set to CAMERA or VCR. (p. 220)
(4) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select the setting of the item, then press the dial.

Items to be adjusted

Item	Setting	Meaning
CH1 LEVEL	AUTO MANUAL	Switches the recording level adjustment of the channel 1 from automatic (AUTO) and manual (MANUAL).
CH2 LEVEL	AUTO MANUAL	Switches the recording level adjustment of the channel 2 from automatic (AUTO) and manual (MANUAL).
MAN GAIN*	SEPARATE LINKED	Sets the recording levels of channel 1 and channel 2 linked (LINKED) or separated (SEPARATE).

* LINKED is only available when both CH1 LEVEL and CH2 LEVEL are set to MANUAL.

(6) Press AUDIO LEVEL to display the recording level adjustment display in the standby or recording mode.
(7) Turn the SEL/PUSH EXEC dial to adjust the recording level of the channel 1, then press the dial. The cursor moves to “CH2.”
(8) Turn the SEL/PUSH EXEC dial to adjust the recording level of the channel 2.


6,7
[a]
AUDIO LEVEL
−∞ 30 20 12 0 dB
CH1
CH2
CH1
CH2
[b] [c]
8
−∞ 30 20 12 0 dB
CH1
CH2
CH1
CH2
MENU
3,4
TAPE SET
REC MODE
AUDIO MODE
REMAIN
MIC NR
MIC LEVEL
XLR SET
[MENU] : END
TAPE SET
XLR SET
CH1 LEVEL AUTO
CH2 LEVEL
MAN GAIN
RETURN
[MENU] : END

[a] Recording level meter
[b] Decreases the recording level
[c] Increases the recording level

To clear the recording level adjustment display

Press AUDIO LEVEL. The recording level adjustment disappears.

To return to automatic recording sound level

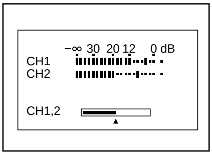
Set CH1 LEVEL to AUTO when you automatically adjust the recording level of the channel 1. And set CH2 LEVEL to AUTO when you automatically adjust the recording level of the channel 2.

When the XLR adaptor is not installed

XLR SET cannot be selected.

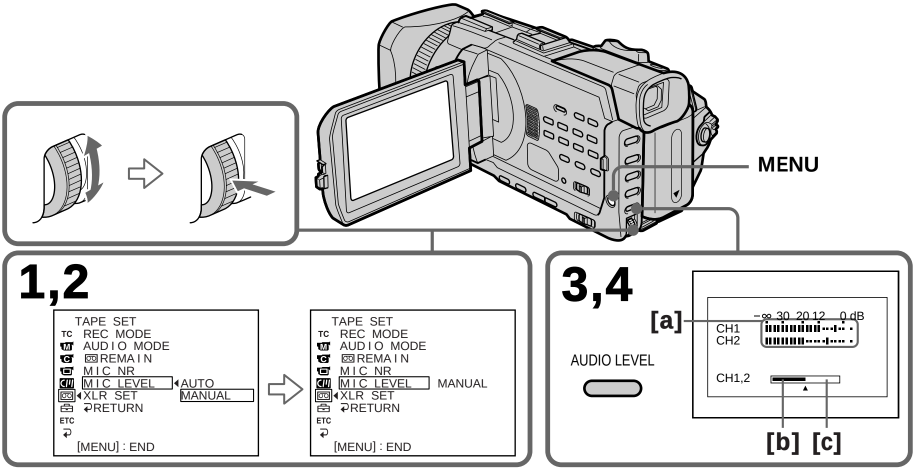
When MAN GAIN is set to LINKED

The recording level adjustment display is changed as follows.


−∞ 30 20 12 0 dB
CH1
CH2
CH1,2

Adjusting the recording level of the built-in microphone

(1) Select MIC LEVEL in 📼 in the menu setting while the POWER switch is set to CAMERA or VCR.
(2) Turn the SEL/PUSH EXEC dial to select MANUAL, then press the dial.
(3) Press AUDIO LEVEL to display the recording level adjustment display in standby or recording mode.
(4) Turn the SEL/PUSH EXEC dial to adjust the recording level.


MENU
1,2
TAPE SET
TC REC MODE
AUDIO MODE
REMAIN
MIC NR
MIC LEVEL
AUTO
MANUAL
XLR SET
RETURN
ETC
[MENU] : END
TAPE SET
TC REC MODE
AUDIO MODE
REMAIN
MIC NR
MIC LEVEL
MANUAL
XLR SET
RETURN
ETC
[MENU] : END
3,4
[a]
AUDIO LEVEL
−∞ 30 20 12 0 dB
CH1
CH2
CH1,2
[b] [c]

[a] Recording level meter
[b] Decreases the recording level
[c] Increases the recording level

To clear the recording level adjustment display

Press AUDIO LEVEL. The recording level adjustment disappears.

To return to automatic recording sound level

Set MIC LEVEL to AUTO in the menu setting.

The sound input through the AUDIO/VIDEO jack or the i DV Interface

You cannot adjust the recording level.

When recording level is set to AUTO

You cannot adjust the recording level, however, the recording level adjustment display is displayed.

When recording level is set to MANUAL

The recording level indicator appears at the lower-right on the screen.

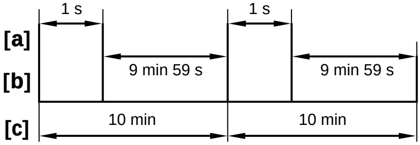
When MAN GAIN is set to LINKED or the built-in microphone is used

The recording level for the channel 1 and for the channel 2 cannot be adjusted separately.

Interval recording

You can make a time-lapse recording by setting the camcorder to automatically record and standby sequentially. You can achieve an excellent recording for flowering, gradual appearances, etc., with this function.

Example



[a] REC TIME
[b] Waiting time
[c] INTERVAL

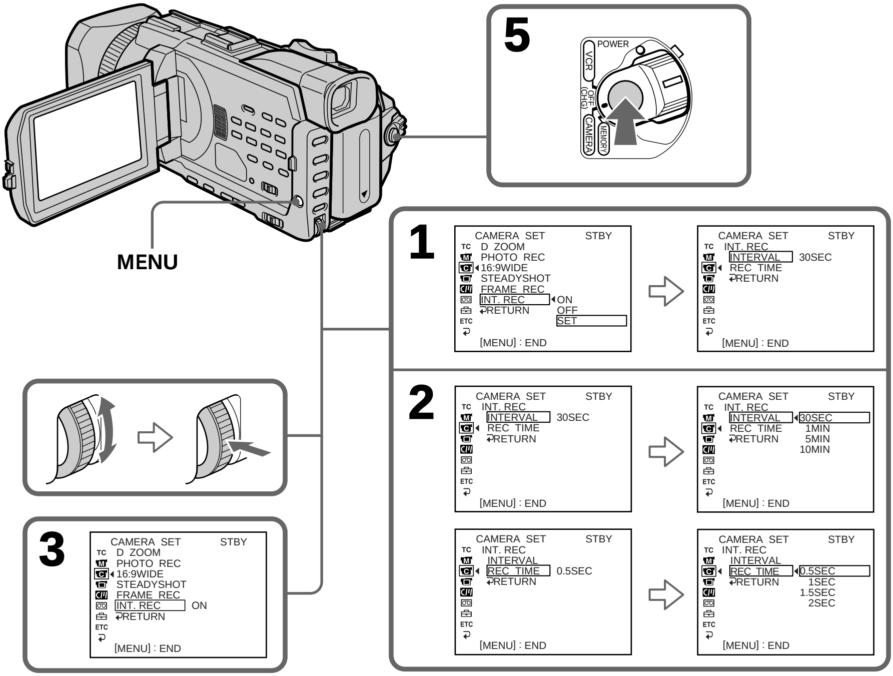
(1) In the standby, set INT. REC in to SET in the menu setting. (p. 215)

(2) Turn the SEL/PUSH EXEC dial to set INTERVAL and REC TIME.
  ① Turn the SEL/PUSH EXEC dial to select INTERVAL, then press the dial.
  ② Turn the SEL/PUSH EXEC dial to select the desired interval time, then press the dial.
  The time: 30SEC ←→ 1MIN ←→ 5MIN ←→ 10MIN
  ③ Turn the SEL/PUSH EXEC dial to select REC TIME, then press the dial.
  ④ Turn the SEL/PUSH EXEC dial to select the desired recording time, then press the dial.
  The time: 0.5SEC ←→ 1SEC ←→ 1.5SEC ←→ 2SEC
  ⑤ Turn the SEL/PUSH EXEC dial to select ↩ RETURN, then press the dial.

(3) Turn the SEL/PUSH EXEC dial to select ON, then press the dial.

(4) Press MENU to erase the menu display. The INTERVAL indicator flashes.

(5) Press START/STOP to start interval recording. The INTERVAL indicator lights up.


5
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
MENU
1
CAMERA SET STBY
D ZOOM
PHOTO REC
16:9WIDE
STEADYSHOT
FRAME REC
INT. REC
RETURN
ON
OFF
SET
[MENU] : END
CAMERA SET STBY
INT. REC
INTERVAL 30SEC
REC TIME
RETURN
[MENU] : END
2
CAMERA SET STBY
INT. REC
INTERVAL 30SEC
REC TIME
RETURN
[MENU] : END
CAMERA SET STBY
INT. REC
INTERVAL
REC TIME
RETURN
30SEC
1MIN
5MIN
10MIN
[MENU] : END
CAMERA SET STBY
INT. REC
INTERVAL
REC TIME 0.5SEC
RETURN
[MENU] : END
CAMERA SET STBY
INT. REC
INTERVAL
REC TIME
RETURN
0.5SEC
1SEC
1.5SEC
2SEC
[MENU] : END
3
CAMERA SET STBY
D ZOOM
PHOTO REC
16:9WIDE
STEADYSHOT
FRAME REC
INT. REC ON
RETURN
[MENU] : END
TC
ETC

To cancel the interval recording

Perform either of the following:

– Set INT. REC to OFF in the menu settings.
– Set the POWER switch to other than CAMERA.

To perform normal recording during the interval recording

Press START/STOP.

The INTERVAL indicator flashes. During the waiting time you can perform normal recording only once.

To stop normal recording, press START/STOP again. Step4 is displayed on the screen.

During the interval recording

You cannot mark an index.

On recording time

There may be a discrepancy in the recording time of up to +/– six frames from the selected time.

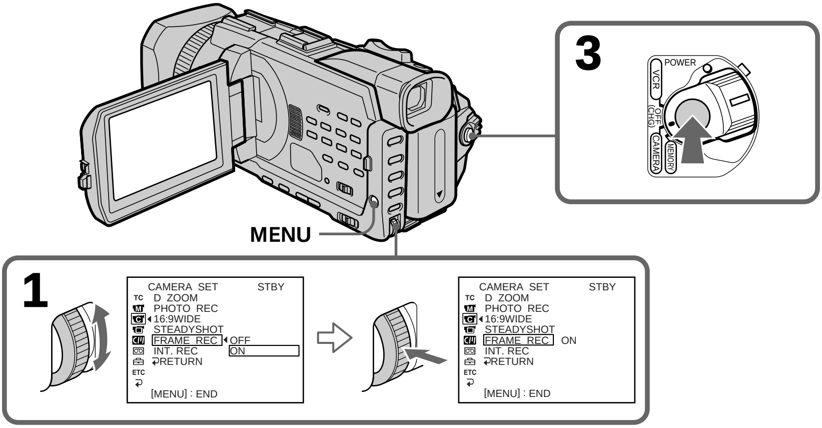
When pressing START/STOP during recording time

Interval recording stops. To restart it, press START/STOP again.

Frame by frame recording – Frame recording

You can make a recording with a stop-motion animated effect using frame recording. To create this effect, alternately move the subject a little and make a frame recording. We recommend that you use a tripod, and operate your camcorder using the Remote Commander after step 3.

(1) In the standby, set FRAME REC in to ON in the menu setting. (p.215)
(2) Press MENU to erase the menu display.
The FRAME REC indicator lights up.
(3) Press START/STOP to start frame recording. Your camcorder makes a recording for about six frames, and returns to recording standby.
(4) Move the subject, and repeat step 3.


3
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
MENU
1
CAMERA SET STBY
TC D ZOOM
PHOTO REC
16:9WIDE
STEADYSHOT
FRAME REC OFF
INT. REC ON
RETURN
ETC
[MENU] : END
CAMERA SET STBY
TC D ZOOM
PHOTO REC
16:9WIDE
STEADYSHOT
FRAME REC ON
INT. REC
RETURN
ETC
[MENU] : END

To cancel the frame recording

Perform either of the following:
– Set FRAME REC to OFF in the menu settings.
– Set the POWER switch to other than CAMERA.

Note

The remaining tape time is not indicated correctly if you use this function continuously.

When using the frame recording

The last recorded frame is longer than other frames.

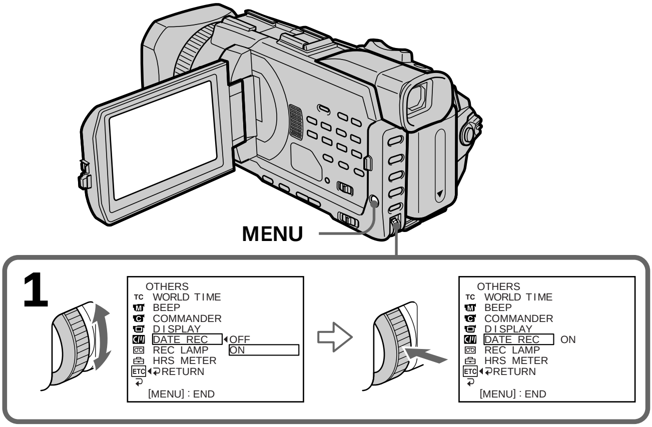
During the frame recording

You cannot mark an index.

Superimposing the date and time on a picture

You can superimpose the date/time indication directly on the picture, besides the date/time display as data code.

(1) In the standby, set DATE REC in ETC to ON in the menu setting. (p. 223)
(2) Press MENU to erase the menu display.
The date/time indicator is displayed on the screen.


MENU
1
OTHERS
WORLD TIME
BEEP
COMMANDER
DISPLAY
DATE REC
OFF
ON
REC LAMP
HRS METER
RETURN
[MENU] : END
OTHERS
WORLD TIME
BEEP
COMMANDER
DISPLAY
DATE REC
ON
REC LAMP
HRS METER
RETURN
[MENU] : END

To cancel superimposing the date/time indication

Set DATE REC to OFF in the menu settings.

Notes

- You cannot erase the recorded date/time data on the picture. Before using this function, make sure that you set the date and time correctly.
- You cannot add recording date or time while recording on the “Memory Stick” in the tape recording or recording standby.

Marking an Index

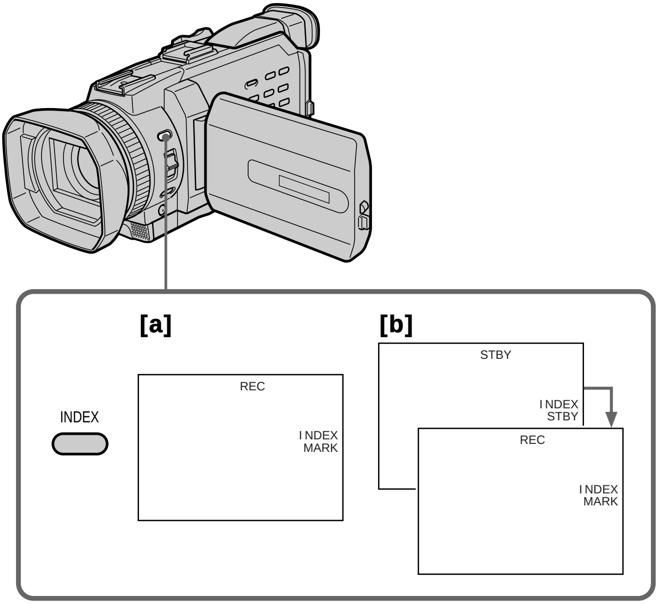
If you mark an index at the scene you want to search for, you can easily search for the scene later (p. 87).

(1) Set the POWER switch to CAMERA.

(2) Press INDEX.

In recording mode [a]:
The “INDEX MARK” indicator appears for seven seconds and the index is marked after the indicator disappears.

In standby mode [b]:
The “INDEX STBY” indicator appears. And when you press START/STOP to start recording, the “INDEX STBY” indicator changes to “INDEX MARK” and after the indicator disappears, the index marking is complete.



To cancel index marking

Press INDEX so that the “INDEX STBY” indicator disappears from the screen while your camcorder is in the standby.

Notes

- Index marks are recorded during recording, you cannot mark an index after recording.
- Index signals will be recorded both on the tape and on cassette memory. If you use cassettes without cassette memory or the cassette memory is full, the signals will be recorded only on the tape. An index signal is recorded about 0.3 second after you start the recording. It is recorded on the 11th frame from the recording start point on cassette memory, and for about five seconds from the 11th frame on a tape.

When you record over the recorded tape and mark an index on the tape
We recommend that you clear all data in the cassette memory before marking an index.

Searching for a recording by index – INDEX SEARCH

You can automatically search for the point where an index is marked and start playback from that point **(INDEX SEARCH)**. Use a tape with cassette memory for convenience.
Use the Remote Commander for this operation.
Use this function to check where indexes are marked or to edit the tape at each sequence where the index is marked.

Searching for the index point using cassette memory

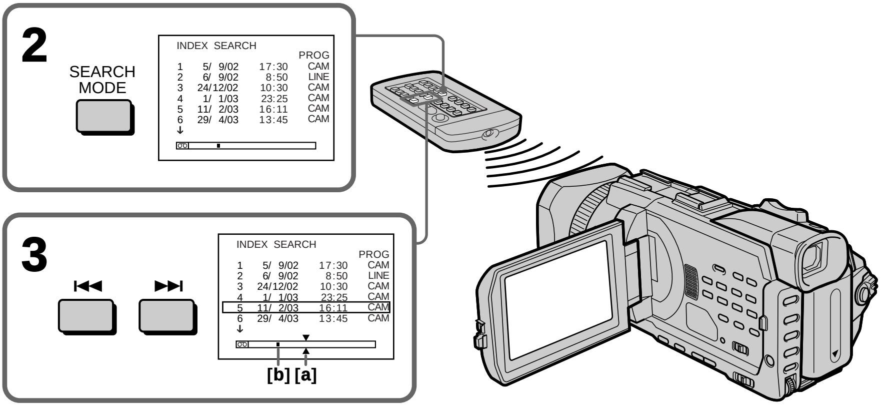
Before operation

- You can use this function only when playing back a tape with cassette memory.
- Set CM SEARCH in to ON in the menu settings. The default setting is ON.

(1) Set the POWER switch to VCR.
(2) Press SEARCH MODE on the Remote Commander repeatedly until the INDEX SEARCH indicator appears. The indicator changes as follows:

$$\begin{tikzcd}
\text{INDEX SEARCH} \arrow[r] & \text{TITLE SEARCH} \arrow[r] & \text{DATE SEARCH} \arrow[d] \\
\text{(no indicator)} \arrow[u] & \text{PHOTO SCAN} \arrow[l] & \text{PHOTO SEARCH} \arrow[l]
\end{tikzcd}$$

(3) Press ⏮ or ⏭ on the Remote Commander to select the index point for playback. Your camcorder automatically starts playing back at the selected index point.


2
SEARCH MODE
INDEX SEARCH
PROG
1 5/ 9/02 17:30 CAM
2 6/ 9/02 8:50 LINE
3 24/12/02 10:30 CAM
4 1/ 1/03 23:25 CAM
5 11/ 2/03 16:11 CAM
6 29/ 4/03 13:45 CAM
3
⏮
⏭
INDEX SEARCH
PROG
1 5/ 9/02 17:30 CAM
2 6/ 9/02 8:50 LINE
3 24/12/02 10:30 CAM
4 1/ 1/03 23:25 CAM
5 11/ 2/03 16:11 CAM
6 29/ 4/03 13:45 CAM
[b] [a]

[a] Actual point you are trying to search for
[b] Present point on the tape

To stop searching

Press ■.

If a tape has a blank portion between recorded portions
INDEX SEARCH may not work correctly.

If you mark an index onto an external input signal
"LINE" appears in the PROG column.

The index of the recording start point when recorded from external audio equipment
The index mark is not recorded in cassette memory. If you want to search for the index point, see "Searching for the index point without using cassette memory" below.

Cassette memory
The tape with cassette memory can hold 135 index data. If you search among 136 or more index data, see "Searching for the index point without using cassette memory" below.

Searching for the index point without using cassette memory

(1) Set the POWER switch to VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to set CM SEARCH in CM to OFF, then press the dial.
(3) Press SEARCH MODE on the Remote Commander repeatedly until the INDEX SEARCH indicator appears.
The indicator changes as follows:

→ INDEX SEARCH → DATE SEARCH → PHOTO SEARCH
(no indicator) ← PHOTO SCAN

(4) Press ⏮ on the Remote Commander to search for the previous index point or press ⏭ on the Remote Commander to search for the next index point.
Your camcorder automatically starts playback at the selected index point. Each time you press ⏮ or ⏭, your camcorder searches for the previous or next index point.

To stop searching
Press ■.

Searching the boundaries of a recorded tape by title – TITLE SEARCH

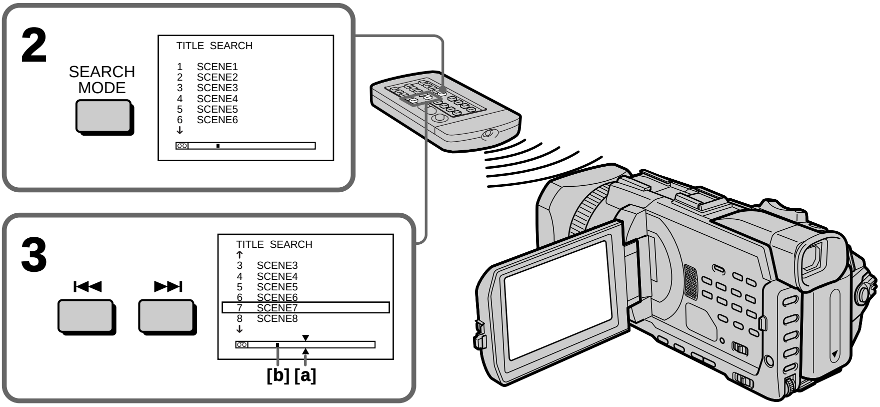
CM only If you use a cassette with cassette memory, you can search for the boundaries of a recorded tape by title **(TITLE SEARCH)**. Use the Remote Commander for this operation.

Before operation
Set CM SEARCH in CM to ON in the menu settings. (The default setting is ON.)

(1) Set the POWER switch to VCR.
(2) Press SEARCH MODE on the Remote Commander repeatedly until the TITLE SEARCH indicator appears. The indicator changes as follows:

→ INDEX SEARCH → TITLE SEARCH → DATE SEARCH
(no indicator) ← PHOTO SCAN ← PHOTO SEARCH ←

(3) Press ⏮ or ⏭ on the Remote Commander to select the title for playback. Your camcorder automatically starts playback of the scene having the title that you selected.


2
SEARCH MODE
TITLE SEARCH
1 SCENE1
2 SCENE2
3 SCENE3
4 SCENE4
5 SCENE5
6 SCENE6
3
⏮
⏭
TITLE SEARCH
3 SCENE3
4 SCENE4
5 SCENE5
6 SCENE6
7 SCENE7
8 SCENE8
[b] [a]

[a] Actual point you are trying to search for
[b] Present point on the tape

To stop searching

Press ■.

If you use a cassette without cassette memory
You cannot superimpose or search a title.

If a tape has a blank portion between recorded portions
The title search may not work correctly.

To superimpose a title
See page 126.

Searching a recording by date – DATE SEARCH

You can automatically search for the point where the recording date changes and start playback from that point **(DATE SEARCH)**. Use a cassette with cassette memory for convenience. Use the Remote Commander for this operation.
Use this function to check where recording dates change or to edit the tape at each recording date.

Searching for the date by using cassette memory

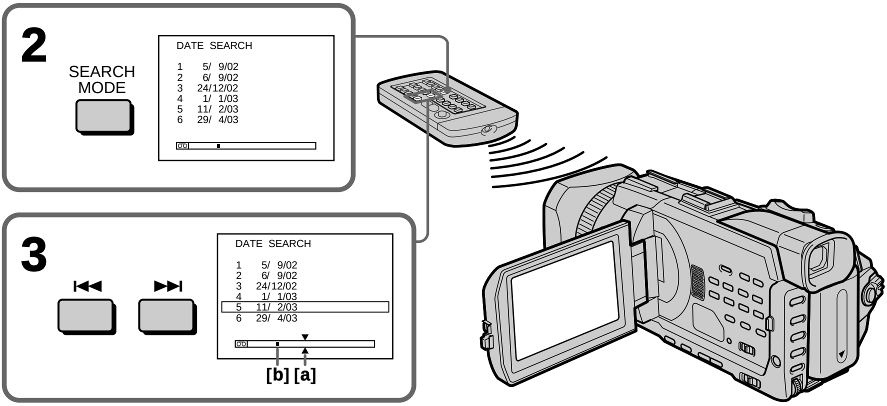
Before operation

- You can use this function only when playing back a cassette with cassette memory.
- Set CM SEARCH in CM to ON in the menu settings. (The default setting is ON.)

(1) Set the POWER switch to VCR.
(2) Press SEARCH MODE on the Remote Commander repeatedly until the DATE SEARCH indicator appears. The indicator changes as follows:

→ INDEX SEARCH → TITLE SEARCH → DATE SEARCH ┐
└ (no indicator) ← PHOTO SCAN ← PHOTO SEARCH ←┘

(3) Press ⏮ or ⏭ on the Remote Commander to select the date for playback. Your camcorder automatically starts playback at the beginning of the selected date.


2
SEARCH MODE
DATE SEARCH
1 5/ 9/02
2 6/ 9/02
3 24/12/02
4 1/ 1/03
5 11/ 2/03
6 29/ 4/03
3
⏮
⏭
DATE SEARCH
1 5/ 9/02
2 6/ 9/02
3 24/12/02
4 1/ 1/03
5 11/ 2/03
6 29/ 4/03
[b] [a]

[a] Actual point you are trying to search for
[b] Present point on the tape

To stop searching

Press ■.

Note

If one day's recording is less than two minutes, your camcorder may not accurately find the point where the recording date changes.

If a tape has a blank portion between recorded portions

DATE SEARCH may not work correctly.

Cassette memory

The tape with cassette memory can hold 24 recording dates. If you search among 25 or more dates, see "Searching for the date without using cassette memory" below.

Searching for the date without using cassette memory

(1) Set the POWER switch to VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to set CM SEARCH in CM to OFF, then press the dial.
(3) Press SEARCH MODE on the Remote Commander repeatedly until the DATE SEARCH indicator appears. The indicator changes as follows:

→ INDEX SEARCH → DATE SEARCH → PHOTO SEARCH ┐
└ (no indicator) ← PHOTO SCAN ←┘

(4) Press ⏮ on the Remote Commander to search for the previous date or press ⏭ on the Remote Commander to search for the next date. Your camcorder automatically starts playback at the point where the date changes. Each time you press ⏮ or ⏭ your camcorder searches for the previous or next date.

To stop searching

Press ■.

Searching for a photo
– PHOTO SEARCH/PHOTO SCAN

You can search for a still image you have recorded on a tape **(PHOTO SEARCH)**. You can also search for still images one after another and display each image for five seconds automatically regardless of cassette memory **(PHOTO SCAN)**. Use the Remote Commander for these operations.
Use this function to check or edit still images.

Searching for a photo by using cassette memory

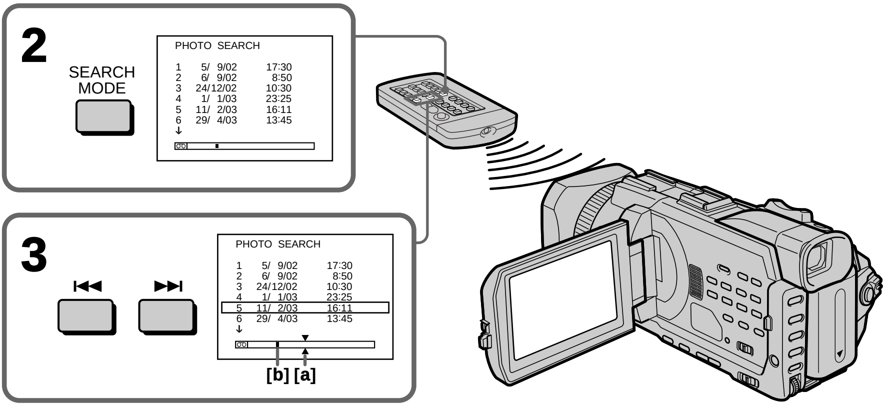
Before operation

- You can use this function only when playing back a cassette with cassette memory.
- Set CM SEARCH in CM to ON in the menu settings. (The default setting is ON.)

(1) Set the POWER switch to VCR.
(2) Press SEARCH MODE on the Remote Commander repeatedly until the PHOTO SEARCH indicator appears. The indicator changes as follows:

→ INDEX SEARCH → TITLE SEARCH → DATE SEARCH
(no indicator) ← PHOTO SCAN ← PHOTO SEARCH ←

(3) Press ⏮ or ⏭ on the Remote Commander to select the date for playback. Your camcorder automatically starts playback of the photo having the date that you selected.



```
PHOTO  SEARCH

1     5/  9/02       17:30
2     6/  9/02        8:50
3    24/12/02       10:30
4     1/  1/03       23:25
5    11/  2/03       16:11
6    29/  4/03       13:45
↓
```

[a] : Actual point you are trying to search for
[b] : Present point on the tape

To stop searching

Press ■.

Searching for a photo without using cassette memory

(1) Set the POWER switch to VCR.

(2) Press MENU, then turn the SEL/PUSH EXEC dial to set CM SEARCH in CM to OFF, then press the dial. (p. 219)

(3) Press SEARCH MODE on the Remote Commander repeatedly until the PHOTO SEARCH indicator appears. The indicator changes as follows:

→ INDEX SEARCH → DATE SEARCH → PHOTO SEARCH
(no indicator) ← PHOTO SCAN ←

(4) Press ⏮ or ⏭ on the Remote Commander to select the photo for playback. Each time you press ⏮ or ⏭ your camcorder searches for the previous or next photo.
Your camcorder automatically starts playback of the photo.

To stop searching

Press ■.

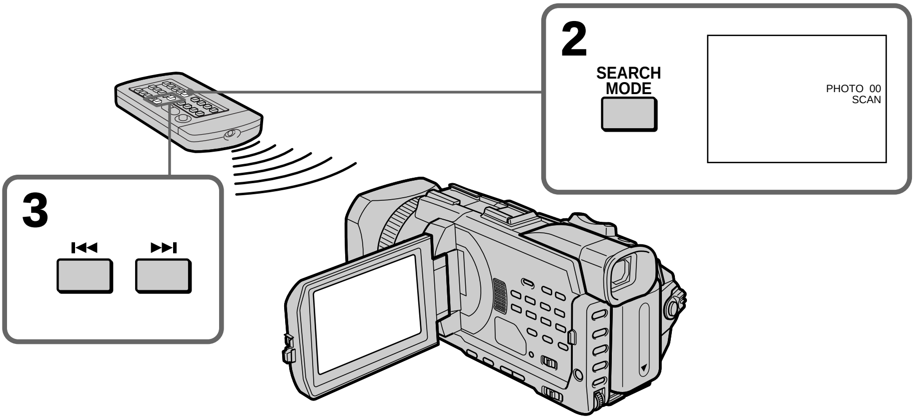
Scanning photos

(1) Set the POWER switch to VCR.
(2) Press SEARCH MODE on the Remote Commander repeatedly until the PHOTO SCAN indicator appears. The indicator changes as follows:

→ INDEX SEARCH → TITLE SEARCH *→ DATE SEARCH
(no indicator) ← PHOTO SCAN ← PHOTO SEARCH ←

* Displayed only when CM SEARCH is set to ON in the menu settings.

(3) Press ⏮ or ⏭ on the Remote Commander.
Each photo is played back for about five seconds automatically.



To stop scanning

Press ■.

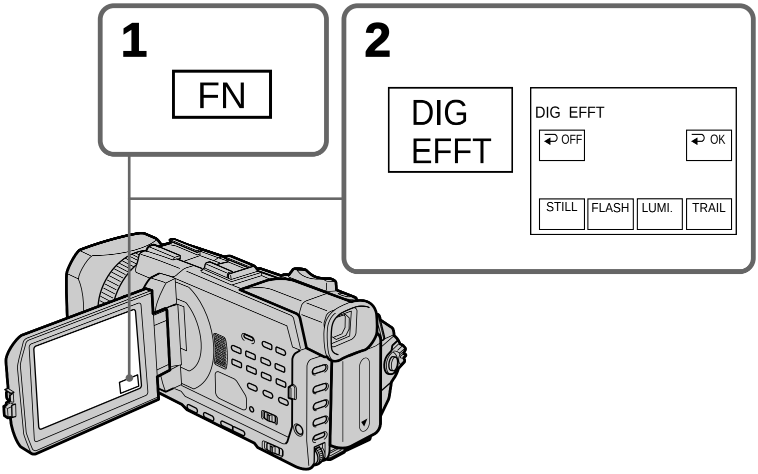
If a tape has a blank portion between recorded portions
PHOTO SEARCH/PHOTO SCAN may not work correctly.

The available number of photos that can be searched using the cassette memory
The available number is up to 48 photos. However, you can search 49 photos or more using the PHOTO SCAN.

Playing back tapes with digital effect

During playback, you can process a scene using the following digital effect:
STILL, FLASH, LUMI. and TRAIL.

(1) In the playback or playback pause, press FN and select PAGE2.
(2) Press DIG EFFT. The screen to select a desired digital effect appears.
(3) Press a desired mode. In the STILL or LUMI., the picture where you select the mode is stored in memory as a still image.
(4) Press –/+ to adjust the effect. Refer to page 59 for details.
(5) Press ↩ OK to return to PAGE2.



To return to FN

Press EXIT.

To cancel the digital effect

Press ↩ OFF to return to PAGE2.

Notes

- You cannot process externally input scenes using digital effect.
- You cannot record images on a tape on your camcorder when you have processed the image using digital effect. However, you can record images on a "Memory Stick" (p. 151, 163), or on a VCR using your camcorder as a player.

Pictures processed by digital effect

Pictures processed by digital effect are not output through the i DV Interface.

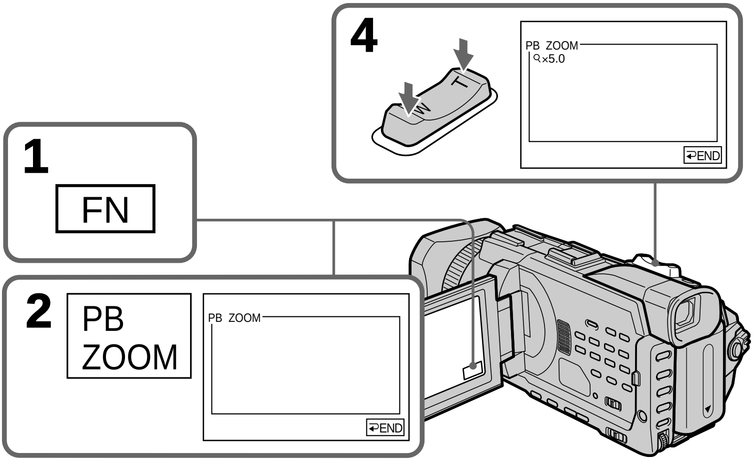
When you set the POWER switch to OFF (CHG) or stop playing back

Digital effect is automatically cancelled.

Enlarging images recorded on tapes – Tape PB ZOOM

You can enlarge playback images recorded on tapes. Besides the operation described here, your camcorder can enlarge still images recorded on the "Memory Stick" (p. 180).

(1) In the playback or playback pause, press FN and select PAGE2.
(2) Press PB ZOOM. The PB ZOOM screen appears.
(3) Press the area you want to enlarge in the frame on the PB ZOOM screen. The area you pressed moves to the centre of the screen, and the playback image is enlarged approximately at twice the size. If you press the other area again, the area moves to the centre of the screen.
(4) Adjust the zoom ratio by the power zoom lever. You can enlarge the image from approximately 1.1 times up to five times its size.
W: Decreases the zoom ratio.
T: Increases the zoom ratio.



To cancel the PB ZOOM

Press ⮐ END.

Notes
- You cannot process externally input scenes using the PB ZOOM.
- You cannot record images on a tape on your camcorder when you have processed the image using the tape PB ZOOM. However, you can record images on a VCR using your camcorder as a player.
- You cannot record moving pictures on a "Memory Stick" on your camcorder when you have processed the picture using the tape PB ZOOM.

The PB ZOOM is automatically cancelled when you activate the following:
– Set the POWER switch to OFF (CHG).
– Stop playback.
– Press MENU.
– Insert a "Memory Stick."

Pictures in the PB ZOOM
Pictures in the PB ZOOM are not output through the i DV Interface and the ψ (USB) jack.

In the PB ZOOM
If you press DISPLAY/TOUCH PANEL button, the frame on the PB ZOOM screen disappears. You cannot move the part you pressed to the centre of the screen.

Edge of the enlarged image
The edge of the enlarged image cannot be displayed at the centre of the screen.

Dubbing a tape

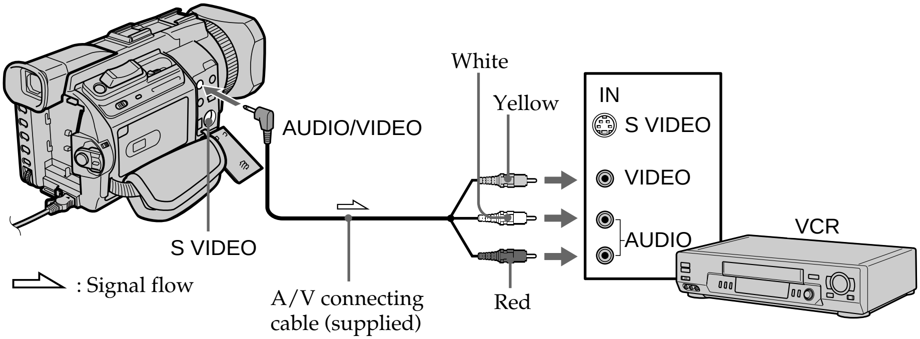
Using the A/V connecting cable

You can dub or edit on the VCR connected to your camcorder using your camcorder as a player.
Connect your camcorder to the VCR using the A/V connecting cable supplied with your camcorder.

Before operation

- Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)
- Press the following buttons to make the indicator disappear so that they will not be superimposed on the edited tape:
  On your camcorder:
  DISPLAY/TOUCH PANEL, DATA CODE
  On the Remote Commander:
  DISPLAY, DATA CODE, SEARCH MODE

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Prepare the VCR for recording, then set the input selector to LINE.
Connect the A/V connecting cable to the AUDIO/VIDEO jack.
Refer to the operating instructions of the VCR.
(3) Set the POWER switch to VCR on your camcorder.
(4) Play back the recorded tape on your camcorder.
(5) Start recording on the VCR. Refer to the operating instructions of your VCR.



When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

You can edit on VCRs that support the following systems:

8 mm, Hi8, VHS, S-VHS, VHSC, S-VHSC, Betamax, DVCAM, mini DV, DV, Digital8, MICRO MV

If your VCR is a monaural type

Connect the yellow plug of the A/V connecting cable to the video input jack and the white or the red plug to the audio input jack on the VCR or the TV. When the white plug is connected, the left channel audio is output, and when the red plug is connected, the right channel audio is output.

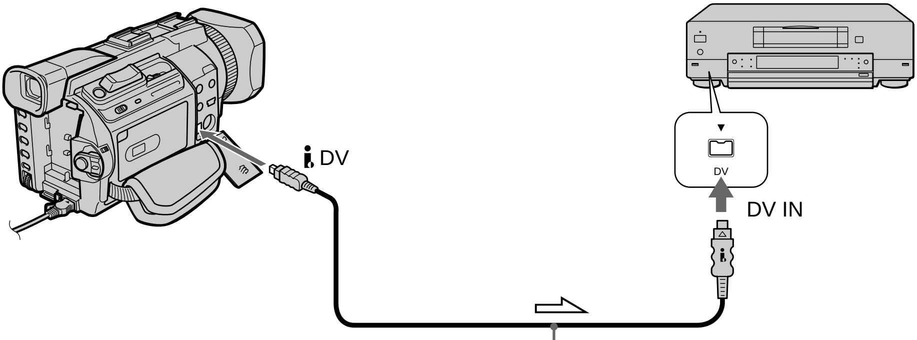
If your VCR has an S video jack

Pictures can be reproduced more faithfully by using an S video cable (optional).
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (optional) to the S VIDEO jacks of both your camcorder and the VCR.
This connection produces higher quality DVCAM/DV format pictures.

Using the i.LINK cable

Simply connect the i.LINK cable (optional) to the i DV Interface on your camcorder and to DV IN on the DV products. With a digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing. You cannot dub the titles, display indicators or the contents of cassette memory or letters on the “Memory Stick” index screen.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Prepare the VCR for recording, then set the input selector to LINE. Refer to the operating instructions of the VCR.
(3) Set the POWER switch to VCR on your camcorder.
(4) Play back the recorded tape on your camcorder.
(5) Start recording on the VCR. Refer to the operating instructions of the VCR.



⇨ : Signal flow

i. LINK cable (optional)

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

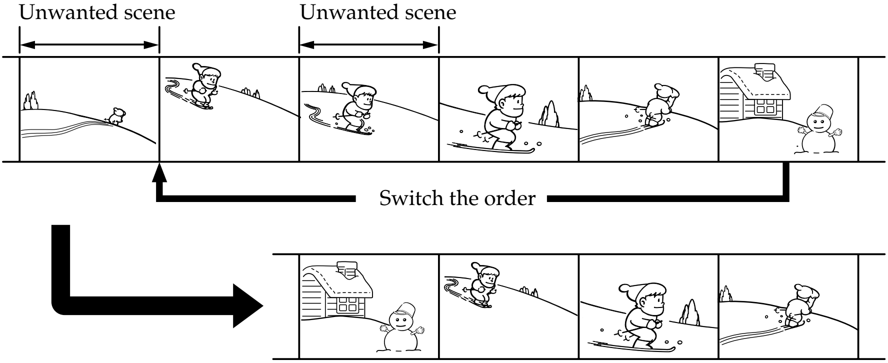
You can connect one VCR only using the i.LINK cable
See page 241 for more information about i.LINK.

Pictures processed by the digital effect or PB ZOOM
These pictures are not output through the i DV Interface.

If you record a playback pause picture with the i DV Interface
The recorded picture becomes rough. Also, when you play back the picture using other video equipment, the picture may jitter.

Dubbing only desired scenes – Digital program editing (on tapes)

You can duplicate selected scenes (programmes) for editing onto a tape without operating the VCR.
Scenes can be selected by frame. You can set up to 20 programmes.
Your camcorder can dub on a "Memory Stick." See p. 167 for more information.



Before operating the Digital program editing on tapes recorded on other equipment

Step 1 Connecting the VCR.
Step 2 Setting the VCR for operation (p. 102, 106).
Step 3 Adjusting the synchronization of the VCR (p. 107).
When you dub using the same VCR again, you can skip steps 2 and 3.

Using the Digital program editing on tapes recorded on other equipment

Operation 1 Making a programme (p. 109).
Operation 2 Performing the programme (dubbing a tape) (p. 111).

Note
When editing digital video on tapes, the operation signals cannot be sent with the LANC.

Step 1: Connecting the VCR

You can connect both an A/V connecting cable and an i.LINK cable.
When you use the A/V connecting cable, connect the devices as illustrated on page 98.
When you use the i.LINK cable, connect the devices as illustrated on page 100.

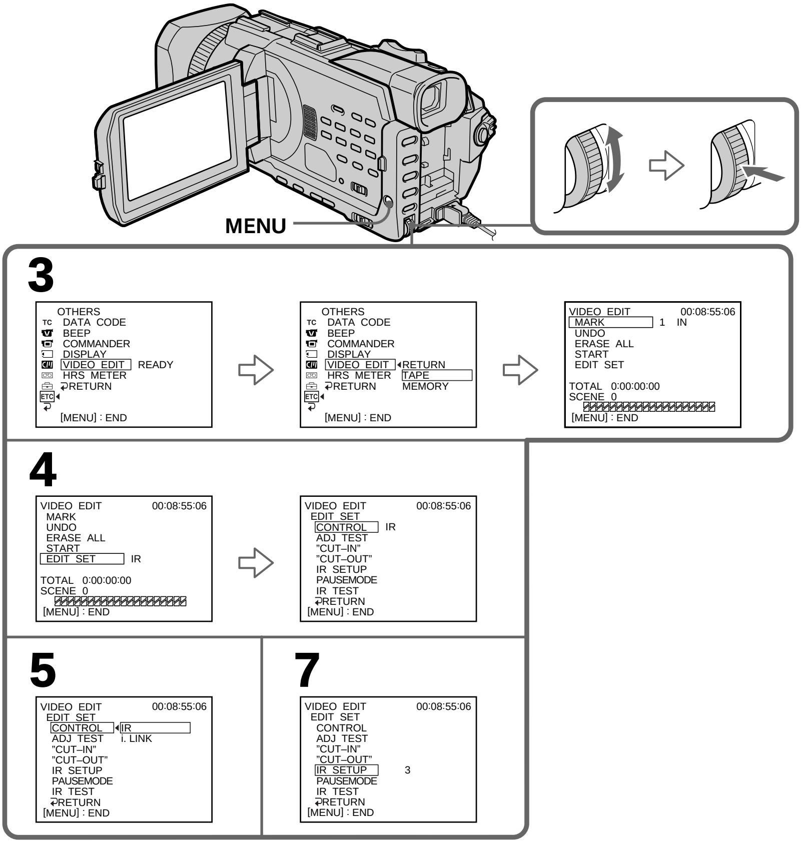
If you connect using the i.LINK cable
With a digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing.

Step 2: Setting the VCR to operate with the A/V connecting cable

To edit using the VCR, send the control signal by infrared rays to the remote sensor on the VCR.
When you connect using the A/V connecting cable, follow the procedure below, steps **(1)** to **(4)**, to send the control signal correctly.

(1) Set the IR SETUP code

① Set the POWER switch to VCR on your camcorder.
② Turn the power of the connected VCR on, then set the input selector to LINE. When you connect a video camera recorder, set its power switch to VCR/VTR.
③ Press MENU, then turn the SEL/PUSH EXEC dial to set VIDEO EDIT in ETC to TAPE, then press the dial. (p. 223)
④ Turn the SEL/PUSH EXEC dial to select EDIT SET, then press the dial.
⑤ Turn the SEL/PUSH EXEC dial to select CONTROL, then press the dial.
⑥ Turn the SEL/PUSH EXEC dial to select IR, then press the dial.
⑦ Turn the SEL/PUSH EXEC dial to select IR SETUP and turn the dial to select IR SETUP code number of your VCR, then press the dial.
Check the code in “About IR SETUP codes.” (p. 103)


MENU
3
OTHERS
DATA CODE
BEEP
COMMANDER
DISPLAY
VIDEO EDIT READY
HRS METER
RETURN
[MENU] : END
OTHERS
DATA CODE
BEEP
COMMANDER
DISPLAY
VIDEO EDIT RETURN
HRS METER TAPE
RETURN MEMORY
[MENU] : END
VIDEO EDIT 00:08:55:06
MARK 1 IN
UNDO
ERASE ALL
START
EDIT SET
TOTAL 0:00:00:00
SCENE 0
[MENU] : END
4
VIDEO EDIT 00:08:55:06
MARK
UNDO
ERASE ALL
START
EDIT SET IR
TOTAL 0:00:00:00
SCENE 0
[MENU] : END
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL IR
ADJ TEST
”CUT–IN”
”CUT–OUT”
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END
5
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL IR
ADJ TEST i. LINK
”CUT–IN”
”CUT–OUT”
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END
7
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
”CUT–IN”
”CUT–OUT”
IR SETUP 3
PAUSEMODE
IR TEST
RETURN
[MENU] : END

About IR SETUP codes

The IR SETUP code is stored in the memory of your camcorder. Be sure to set the correct code to match your VCR. The default setting is code number 3.

Brand	IR SETUP code
Sony	1, 2, 3, 4, 5, 6
Aiwa	47, 53, 54
Akai	50, 62, 74
Alba	73
Amstrad	73
Baird	30, 36
Blaupunkt	11, 83
Bush	74
CGM	36, 47, 83
Clatronic	73
Daewoo	26
Ferguson	76, 83
Fisher	73
Funai	80
Goldstar	47
Goodmans	26, 84
Grundig	9, 83
Hitachi	42, 56
ITT/Nokia Instant	36
JVC	11, 12, 15, 21
Kendo	47
Loewe	16, 47, 84
Luxor	89
Mark	26*
Matsui	47, 58*, 60
Mitsubishi	28, 29

Brand	IR SETUP code
Nokia	36, 89
Nokia Oceanic	89
Nordmende	76
Okano	60, 62, 63
Orion	58*, 70
Panasonic	16, 78
Philips	83, 84, 86
Phonola	83, 84
Roadstar	47
SABA	21, 76, 91
Salora	89
Samsung	22, 32, 52, 93, 94
Sanyo	36
Schneider	10, 83, 84
SEG	73
Seleco	47, 74
Sharp	89
Siemens	10, 36
Tandberg	26
Telefunken	91, 92
Thomson	76, 100
Thorn	36, 47
Toshiba	40, 93
Universum	47, 70, 84, 92
W.W. House	47
Watoson	58, 83

* TV/VCR component

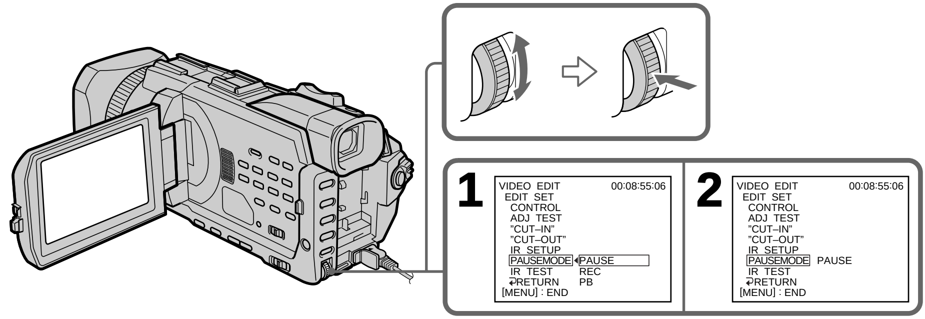
Note on IR SETUP codes

Digital program editing is not possible if the VCR does not support IR SETUP codes.

(2) Setting the modes to cancel the recording pause on the VCR

① Turn the SEL/PUSH EXEC dial to select PAUSEMODE, then press the dial.
② Turn the SEL/PUSH EXEC dial to select the mode to cancel recording pause on the VCR, then press the dial.

Refer to the operating instructions of your VCR.


1
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE PAUSE
IR TEST REC
RETURN PB
[MENU] : END
2
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE PAUSE
IR TEST
RETURN
[MENU] : END

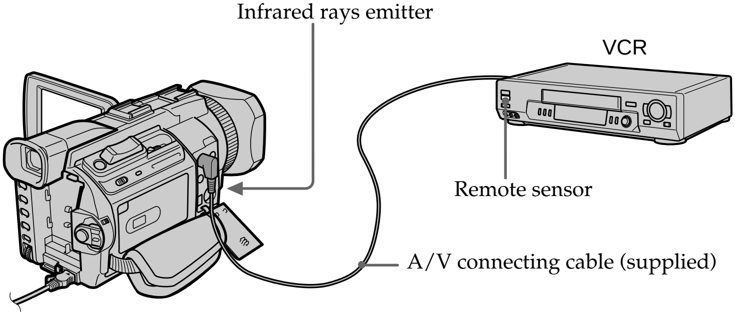
Buttons to cancel recording pause on the VCR

The buttons vary depending on your VCR. To cancel recording pause:
– Select PAUSE if the button to cancel recording pause is ❚❚.
– Select REC if the button to cancel recording pause is ●.
– Select PB if the button to cancel recording pause is ►.

(3) Setting your camcorder and the VCR to face each other

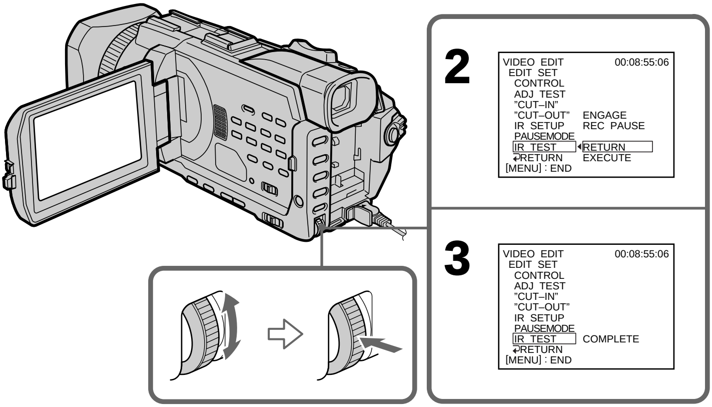
Locate the infrared rays emitter of your camcorder and face it towards the remote sensor of the VCR.

Set the devices about 30 cm (12 in.) apart, and remove any obstacles between the devices.


Infrared rays emitter
VCR
Remote sensor
A/V connecting cable (supplied)

(4) Confirming VCR operation

① Insert a recordable tape into the VCR, then set to recording pause.
② Turn the SEL/PUSH EXEC dial to select IR TEST, then press the dial.
③ Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
If the VCR starts recording, the setting is correct.
When recording is finished, the indicator changes to COMPLETE.


2
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN"
"CUT–OUT" ENGAGE
IR SETUP REC PAUSE
PAUSEMODE
IR TEST RETURN
↩RETURN EXECUTE
[MENU] : END
3
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE
IR TEST COMPLETE
↩RETURN
[MENU] : END

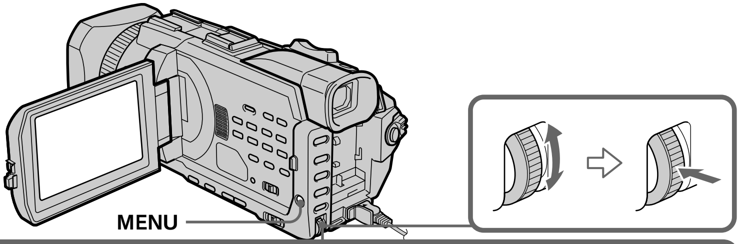
When the VCR does not operate correctly

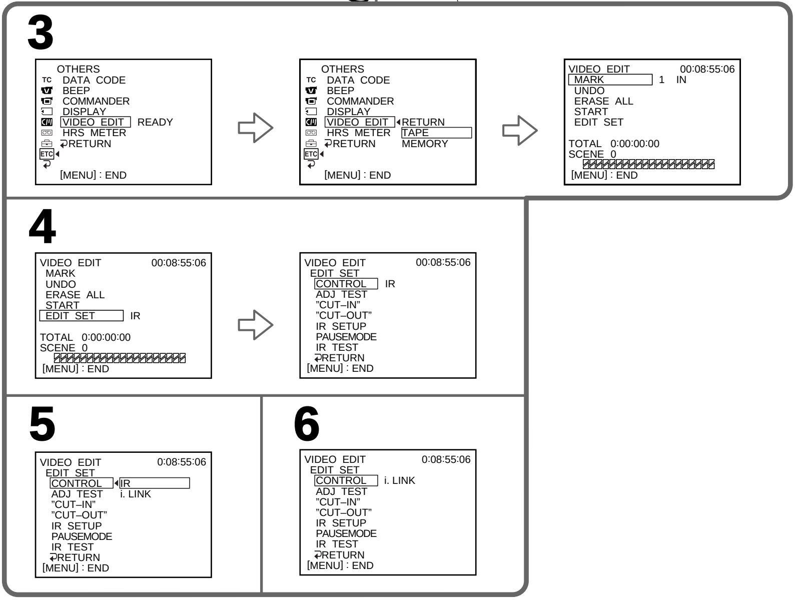
- After checking the code in "About IR SETUP codes," set the IR SETUP or the PAUSEMODE again.
- Place your camcorder at least 30 cm (12 in.) away from the VCR.
- Refer to the operating instructions of your VCR.

Step 2: Setting the VCR to operate with the i.LINK cable

When you connect using the i.LINK cable (optional), follow the procedure below.

(1) Set the POWER switch to VCR on your camcorder.
(2) Turn the power of the connected VCR on, then set the input selector to DV input. When you connect a digital video camera recorder, set its power switch to VCR/VTR.
(3) Press MENU, then turn the SEL/PUSH EXEC dial to set VIDEO EDIT in ETC to TAPE, then press the dial. (p. 223)
(4) Turn the SEL/PUSH EXEC dial to select EDIT SET, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select CONTROL, then press the dial.
(6) Turn the SEL/PUSH EXEC dial to select i.LINK, then press the dial.



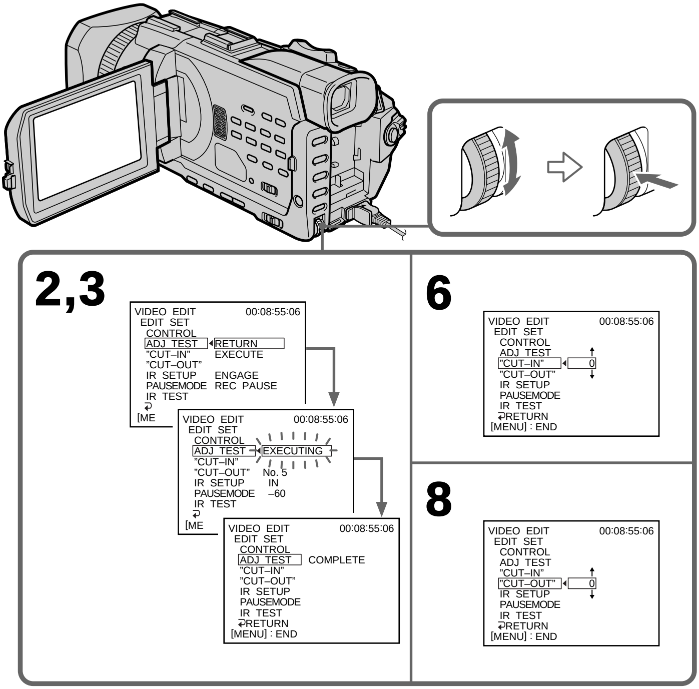

3
OTHERS
TC DATA CODE
BEEP
COMMANDER
DISPLAY
VIDEO EDIT READY
HRS METER
RETURN
ETC
[MENU] : END
OTHERS
TC DATA CODE
BEEP
COMMANDER
DISPLAY
VIDEO EDIT RETURN
HRS METER TAPE
RETURN MEMORY
ETC
[MENU] : END
VIDEO EDIT 00:08:55:06
MARK 1 IN
UNDO
ERASE ALL
START
EDIT SET
TOTAL 0:00:00:00
SCENE 0
[MENU] : END
4
VIDEO EDIT 00:08:55:06
MARK
UNDO
ERASE ALL
START
EDIT SET IR
TOTAL 0:00:00:00
SCENE 0
[MENU] : END
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL IR
ADJ TEST
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END
5
VIDEO EDIT 0:08:55:06
EDIT SET
CONTROL IR
ADJ TEST i. LINK
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END
6
VIDEO EDIT 0:08:55:06
EDIT SET
CONTROL i. LINK
ADJ TEST
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END

When you connect using an i.LINK cable
You cannot dub the titles, display indicators.

Step 3: Adjusting the synchronization of the VCR

You can adjust the synchronization of your camcorder and the VCR. Have a pen and paper ready for notes. Before operation, eject a cassette from your camcorder.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, then set to recording pause.
When you select i.LINK in CONTROL, you do not need to set to recording pause.
(2) Turn the SEL/PUSH EXEC dial to select ADJ TEST, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
IN and OUT are recorded on an image for five times each to calculate the number values for adjusting the synchronization.
The EXECUTING indicator flashes on the screen.
When finished, the indicator changes to COMPLETE.
(4) Rewind the tape in the VCR, then start slow playback.
Take a note of the first number value of each IN and the closing number value of each OUT.
(5) Calculate the average of all the first number values of each IN, and the average of all the last number values of each OUT.
(6) Turn the SEL/PUSH EXEC dial to select "CUT-IN", then press the dial.
(7) Turn the SEL/PUSH EXEC dial to select the average number value of IN, then press the dial.
The calculated start position for recording is set.
(8) Turn the SEL/PUSH EXEC dial to select "CUT-OUT", then press the dial.
(9) Turn the SEL/PUSH EXEC dial to select the average number value of OUT, then press the dial.
The calculated stop position for recording is set.
(10) Turn the SEL/PUSH EXEC dial to select ⮐ RETURN, then press the dial.


2,3
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN"
"CUT–OUT"
IR SETUP
PAUSEMODE
IR TEST
RETURN
EXECUTE
ENGAGE
REC PAUSE
[ME
EXECUTING
No. 5
IN
–60
COMPLETE
RETURN
[MENU] : END
6
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN" 0
"CUT–OUT"
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END
8
VIDEO EDIT 00:08:55:06
EDIT SET
CONTROL
ADJ TEST
"CUT–IN"
"CUT–OUT" 0
IR SETUP
PAUSEMODE
IR TEST
RETURN
[MENU] : END

Notes

- When you complete step 3, the image used to adjust the synchronization is recorded for about 50 seconds.
- If you start recording from the very beginning of the tape, the first few seconds of the tape may not record properly. Be sure to allow about 10 seconds' lead before starting recording.
- When the recording unit cannot be operated properly by the i.LINK cable, leave the connection as it is, and make the A/V connecting cable settings (p. 102). Video and audio are sent by digital signals.

Operation 1: Making a programme

(1) Insert the tape for playback into your camcorder, and insert a tape for recording into the VCR.

(2) Press MENU, then turn the SEL/PUSH EXEC dial to set VIDEO EDIT in ETC to TAPE, then press the dial. (p. 223)

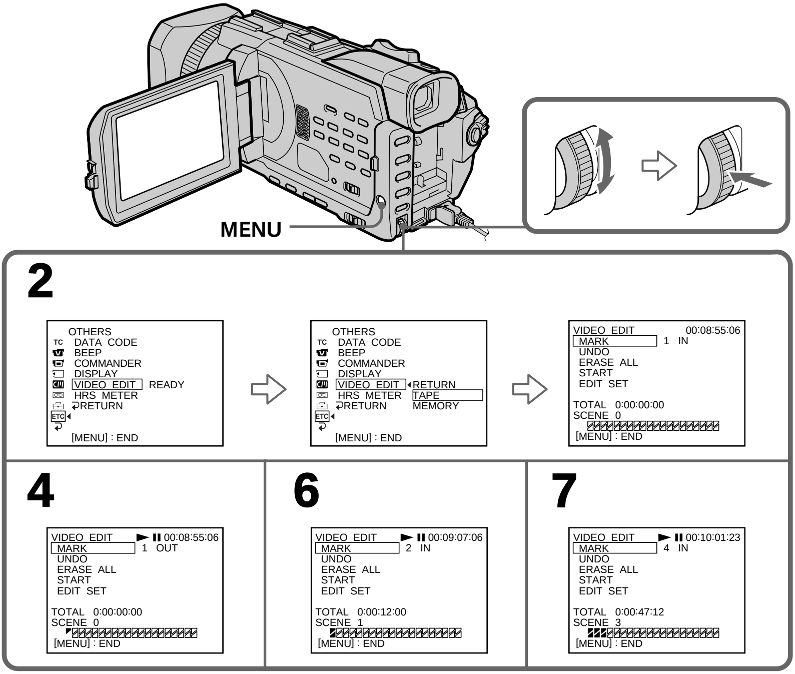
(3) Search for the beginning of the first scene you want to insert using the video operation buttons, then pause playback.
You can fine-adjust one frame at a time with EDITSEARCH.

(4) Press MARK on the Remote Commander, or turn the SEL/PUSH EXEC dial to select MARK, then press the dial.
The IN point of the first programme is set, and the top part of the programme mark changes to light blue.

(5) Search for the end of the first scene you want to insert using the video operation buttons, then pause playback. You can fine-adjust one frame at a time with EDITSEARCH.

(6) Press MARK on the Remote Commander, or the SEL/PUSH EXEC dial.
The OUT point of the first programme is set, then the bottom part of the programme mark changes to light blue.

(7) Repeat steps 3 to 6, then set the programme.
When the programme is set, the programme mark changes to light blue.
You can set up to 20 programmes in maximum.


MENU
2
OTHERS
DATA CODE
BEEP
COMMANDER
DISPLAY
VIDEO EDIT READY
HRS METER
RETURN
[MENU] : END
OTHERS
DATA CODE
BEEP
COMMANDER
DISPLAY
VIDEO EDIT RETURN
HRS METER TAPE
RETURN MEMORY
[MENU] : END
VIDEO EDIT 00:08:55:06
MARK 1 IN
UNDO
ERASE ALL
START
EDIT SET
TOTAL 0:00:00:00
SCENE 0
[MENU] : END
4
VIDEO EDIT ▶ ❚❚ 00:08:55:06
MARK 1 OUT
UNDO
ERASE ALL
START
EDIT SET
TOTAL 0:00:00:00
SCENE 0
[MENU] : END
6
VIDEO EDIT ▶ ❚❚ 00:09:07:06
MARK 2 IN
UNDO
ERASE ALL
START
EDIT SET
TOTAL 0:00:12:00
SCENE 1
[MENU] : END
7
VIDEO EDIT ▶ ❚❚ 00:10:01:23
MARK 4 IN
UNDO
ERASE ALL
START
EDIT SET
TOTAL 0:00:47:12
SCENE 3
[MENU] : END

Erasing the programme you have set

Erase OUT first and then IN from of the last programme.

(1) Turn the SEL/PUSH EXEC dial to select UNDO, then press the dial.

(2) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
The last set programme mark flashes, then the setting is cancelled.

To cancel erasing

Select RETURN with the SEL/PUSH EXEC dial in step 2.

Erasing all programmes

(1) Turn the SEL/PUSH EXEC dial to select ERASE ALL.

(2) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
All the programme marks flash, then the settings are cancelled.

To cancel erasing all programmes

Select RETURN with the SEL/PUSH EXEC dial in step 2.

To cancel a programme you have set

Press MENU.

The programme is stored in memory until the tape is ejected.

Note

You cannot operate recording during Digital program editing.

If the tape has a blank portion

You cannot set IN and OUT on the portion.

The total time may not be displayed correctly in the following cases

– When there is a blank portion between IN and OUT on the tape.
– When you mix recordings in the DVCAM format and DV format on one tape.

Operation 2: Performing the programme (Dubbing a tape)

Make sure that your camcorder and the VCR are connected, and that the VCR is set to recording pause. When you use an i.LINK cable, the following procedure is not necessary.
When you use a digital video camera recorder, set its power switch to VCR/VTR.

(1) Turn the SEL/PUSH EXEC dial to select START.
(2) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
Search for the beginning of the first programme, then start dubbing.
The programme mark flashes.
The SEARCH indicator appears during search, and the EDITING indicator appears during edit on the screen.
The PROGRAM indicator changes to light blue after dubbing ends.
When dubbing ends, your camcorder and the VCR automatically stop.

To stop dubbing during editing

Press ■ using the video operation buttons.

To end the Digital program editing

Your camcorder stops when the dubbing ends. Then the display returns to VIDEO EDIT in the menu settings.
Press MENU to erase the menu display.

You cannot record on the VCR when:
– The tape has run out.
– The write-protect tab on the cassette is set to lock.
– The IR SETUP code is not correct. (when IR is selected)
– The button to cancel recording pause is not correct. (when IR is selected)

NOT READY appears on the LCD screen when:
– The programme to operate the Digital program editing has not been made.
– i.LINK is selected but an i.LINK cable is not connected.
– The power of the connected VCR is not turned on. (when you set i.LINK)

Recording video or TV programmes

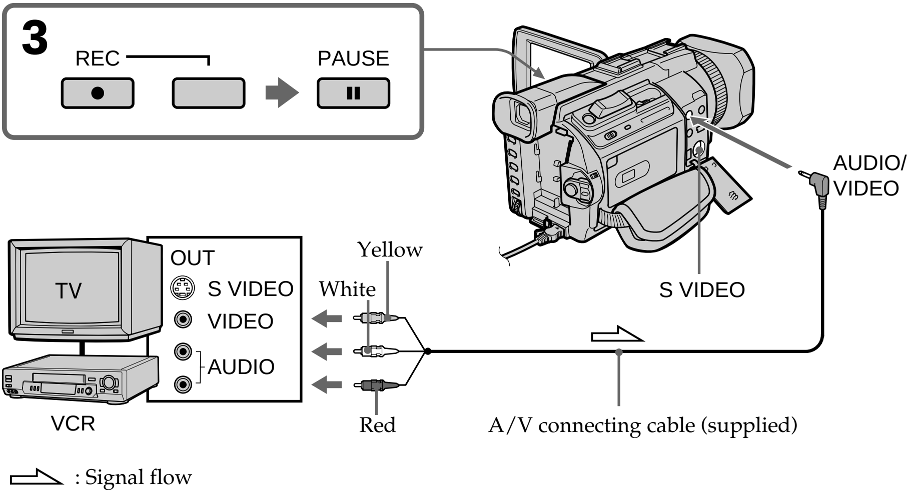
Using the A/V connecting cable

You can record a tape from another VCR or a TV programme from a TV that has video/audio outputs. Use your camcorder as a recorder.

Before operation

Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

(1) Insert a blank tape (or a tape you want to record over) into your camcorder. If you are recording a tape from the VCR, insert a recorded tape into the VCR.
(2) Set the POWER switch to VCR on your camcorder.
(3) Press ● REC and the button on its right simultaneously on your camcorder, then immediately press ❚❚ on your camcorder.
(4) Press ► on the VCR to start playback if you record a tape from a VCR. Select a TV programme if you are recording from a TV. The picture from a TV or VCR appears on the screen.
(5) Press ❚❚ on your camcorder at the scene where you want to start recording from.


3
REC
PAUSE
AUDIO/
VIDEO
TV
OUT
S VIDEO
VIDEO
AUDIO
VCR
Yellow
White
Red
S VIDEO
A/V connecting cable (supplied)
: Signal flow

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

Using the Remote Commander

In step 3, press ● REC and MARK simultaneously, then immediately press ❚❚. In step 5, press ❚❚ at the scene where you want to start recording from.

Note

Your camcorder only records pictures for viewing on a PAL system based TV and VCR. See “Using your camcorder abroad” on page 243 for the TV colour systems used in each country and area.

If your TV or VCR is a monaural type

Connect the yellow plug of the A/V connecting cable to the video output jack and the white or the red plug to the audio output jack on the VCR or the TV. When the white plug is connected, the left channel audio is output, and when the red plug is connected, the right channel audio is output.

If your TV or VCR has an S video jack

Pictures can be reproduced more faithfully by using an S video cable (optional).
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (optional) to the S VIDEO jacks of both your camcorder and the TV or VCR.
This connection produces higher quality DVCAM/DV format pictures.

On index signal

The index is automatically marked on a tape when you start recording. If you mark the index using the INDEX button during recording, “LINE” appears in the PROG column on the INDEX SEARCH screen, and the index is recorded on cassette memory.

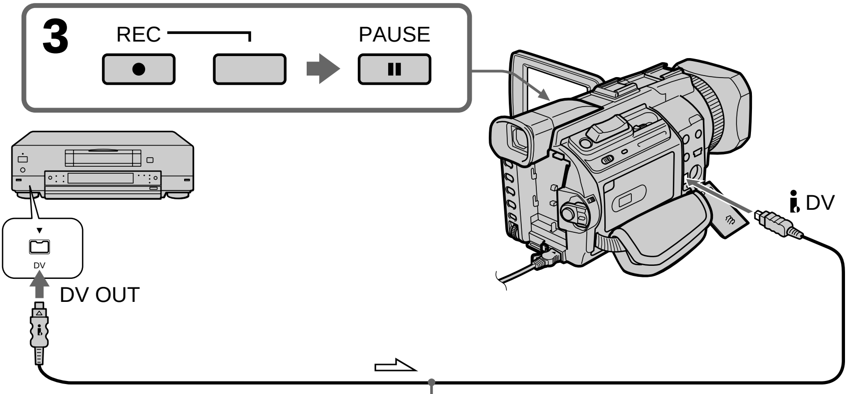
Note on the Remote Commander

Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid erroneous remote control operation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Using the i.LINK cable

Simply connect the i.LINK cable (optional) to the DV Interface on your camcorder and to DV OUT on the DV products. With a digital-to-digital connection, video and audio signals are transmitted in digital form for high-quality editing.

(1) Insert a blank tape (or a tape you want to record over) into your camcorder, and insert the recorded tape into the VCR.
(2) Set the POWER switch to VCR on your camcorder.
(3) Press ● REC and the button on its right simultaneously on your camcorder, then immediately press ❚❚ on your camcorder.
(4) Press ► on the VCR to start playback. The picture to be recorded appears on the screen.
(5) Press ❚❚ on your camcorder at the scene where you want to start recording from.



⇨ : Signal flow

i.LINK cable (optional)

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

Using the Remote Commander

In step 3, press ● REC and MARK simultaneously, then immediately press ❚❚. In step 5, press ❚❚ at the scene where you want to start recording from.

You can connect one VCR only using the i.LINK cable

During digital editing

The colour of the display may be uneven. However, this does not affect the dubbed picture.

If you record playback pause picture with the i DV Interface

The recorded picture becomes rough. When you play back the picture using your camcorder, the picture may jitter.

Before recording

Make sure that the DV IN indicator appears on the LCD screen or in the viewfinder. The DV IN indicator may appear on both equipment.

Note on the Remote Commander

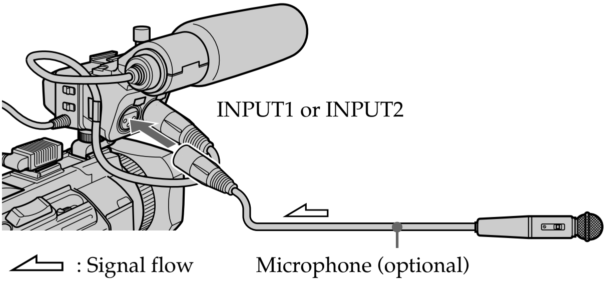
Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid erroneous remote control operation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Audio dubbing

You can record audio to add to the original sound on a tape by connecting audio equipment or a microphone. If you connect audio equipment, you can add sound to your recorded tape already recorded in the Fs32K mode of the DVCAM format by specifying the start and end points. The original sound will not be erased.
You can also use the Remote Commander for this operation.
Select one of the following connections to add audio.

Connecting the microphone to the INPUT1/INPUT2 connectors

For details on setup of the INPUT1/INPUT2 connectors, see “Installing the supplied microphone” on page 29.

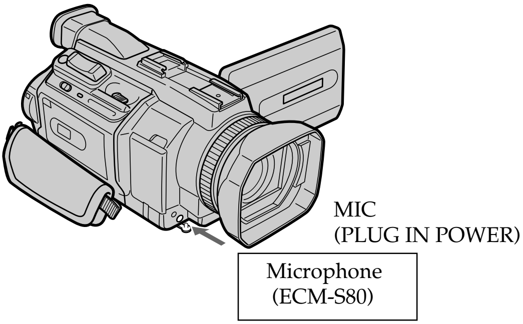


The relationship between audio input and channels on which a dubbed sound will be recorded is as follows:

Audio input through	The position of the REC CH SELECT switch	Which audio input will be recorded on	
		Channel 3	Channel 4
INPUT1/2	CH1	INPUT1	INPUT2
	CH1•CH2	INPUT1	INPUT1
INPUT1	CH1	INPUT1	–
	CH1•CH2	INPUT1	INPUT1
INPUT2	CH1	–	INPUT2
	CH1•CH2	–	–

You can check the picture on TV by connecting with the AUDIO/VIDEO jack. You cannot monitor the additional sound by the speaker. Use the headphones jack.

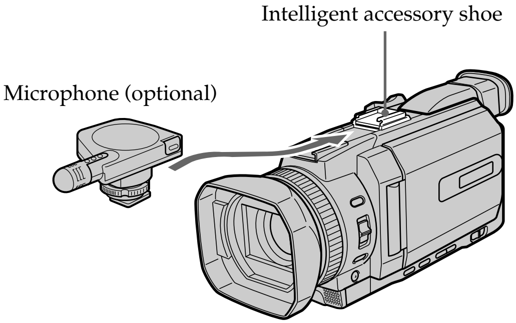
Connecting the microphone with the MIC jack


MIC
(PLUG IN POWER)
Microphone
(ECM-S80)

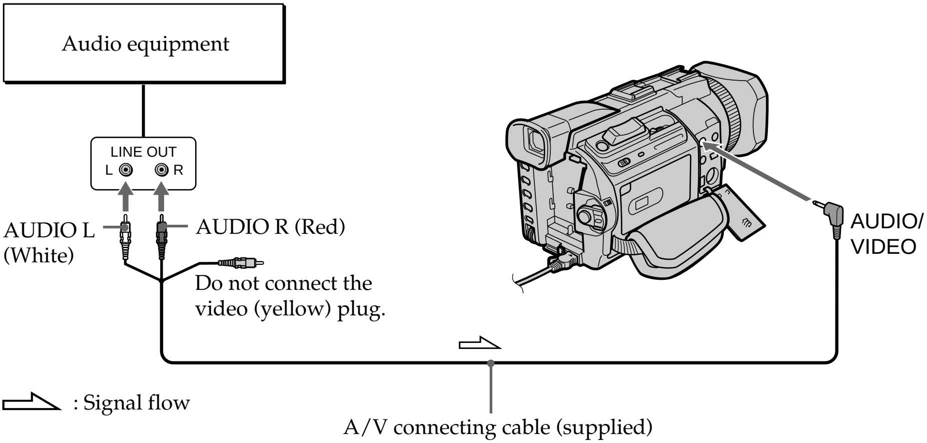
You can check recorded picture and sound by connecting your camcorder to a TV with the A/V connecting cable.
Recorded sound is not output from a speaker. Check the sound by using a TV or headphones.

Note
Be sure to use the ECM-S80 for the external microphone connected to the MIC jack.

Connecting the microphone to the intelligent accessory shoe


Intelligent accessory shoe
Microphone (optional)

Connecting the A/V connecting cable to the AUDIO/VIDEO jack


Audio equipment
LINE OUT
L
R
AUDIO L (White)
AUDIO R (Red)
Do not connect the video (yellow) plug.
AUDIO/ VIDEO
: Signal flow
A/V connecting cable (supplied)

Dubbing with the built-in microphone

No connection is necessary.

Notes

- When dubbing with the AUDIO/VIDEO jack or the built-in microphone, pictures are not output through the S VIDEO jack or the AUDIO/VIDEO jack. Check the recorded picture on the screen. You can check the recorded sound by using headphones.
- You cannot add audio with the i DV Interface.

If you make all the connections

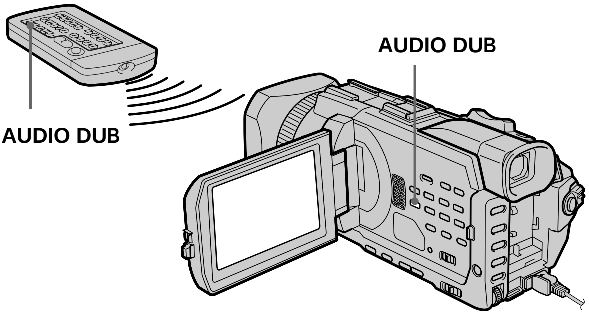
The audio input to be recorded will take precedence over others in the following order:

- MIC (PLUG IN POWER) jack
- Intelligent accessory shoe
- AUDIO/VIDEO jack
- INPUT1/INPUT2 connectors
- Built-in microphone

Adding audio on a recorded tape

Choose a connection described on the previous pages, and connect audio equipment or microphone to your camcorder. Then follow the procedure below.

(1) Insert the recorded tape into your camcorder.
(2) Set the POWER switch to VCR on your camcorder.
(3) Locate the recording start point by pressing ►. Then press ❚❚ at the point where you want to start recording to set your camcorder to the playback pause.
(4) Press AUDIO DUB . The green ⊖❚❚ indicator appears on the screen.
(5) Press ❚❚ and start playing back the audio you want to record at the same time. The new sound is recorded in channel3/channel4 during playback. While audio is being recorded, the red ⊖ appears on the screen.
(6) Press ■ at the point where you want to stop recording.

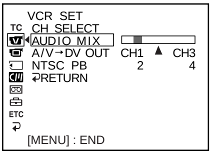


When you dub the recorded sound
You can adjust the recorded sound by using MIC LEVEL (p. 80). However, when the camcorder is connected to the AUDIO/VIDEO jack, sound cannot be adjusted.

If you set the audio balance beforehand
You can monitor both the original sound and dubbed sound during the dubbing.

Monitoring the new recorded sound

(1) Play back the tape on which you added audio.
(2) Turn the SEL/PUSH EXEC dial to select AUDIO MIX in V in the menu settings, then press the dial.



(3) Turn the SEL/PUSH EXEC dial to adjust the balance between the original sound (channel1/channel2) and the new sound (channel3/channel4), then press the dial.
The default setting is original sound (channel1/channel2) only.

Notes
- New sound cannot be recorded on a tape already recorded in the Fs48K mode.
- New audio cannot be recorded on a tape already recorded in the DV SP mode.
- You cannot add audio on the blank portion of the tape.

If an i.LINK cable (optional) is connected to your camcorder
You cannot add audio to a recorded tape.

We recommend that you add audio on a tape recorded with your camcorder
If you add audio on a tape recorded with another camcorder (including another DSR-PDX10P), the sound quality may become worse.

If you set the write-protect tab of the cassette to lock
You cannot record on a tape. Slide the write-protect tab to release the write protection.

Setting time values

You can use time code or user bits for time data.
The time value is displayed on the LCD screen, in the viewfinder, or on the display window. The time code and user bits can be set only in DVCAM mode.
The user bits are convenient when using multiple cameras at the same event.
When you record the picture, time code data will be recorded automatically.

Setting the time code value

(1) Set the POWER switch to CAMERA or VCR.

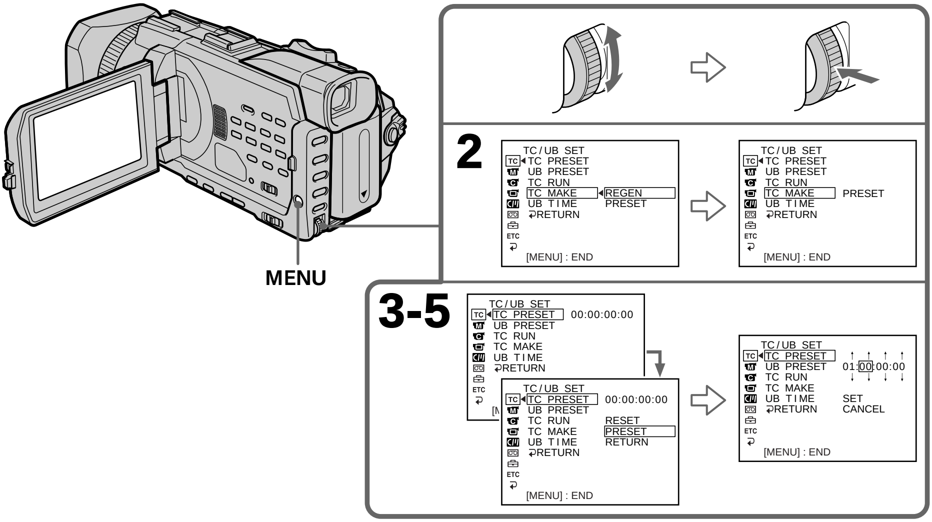
(2) Press MENU, then turn the SEL/PUSH EXEC dial to set TC MAKE in TC to PRESET, then press the dial.

(3) Turn the SEL/PUSH EXEC dial to select TC PRESET, then press the dial.

(4) Turn the SEL/PUSH EXEC dial to select PRESET, then press the dial.

(5) Set up the first two digits. Turn the SEL/PUSH EXEC dial to select the number, then press the dial. The time code is set between 00:00:00:00 and 23:59:59:29.

(6) Repeat step 5 to set up the other digits.

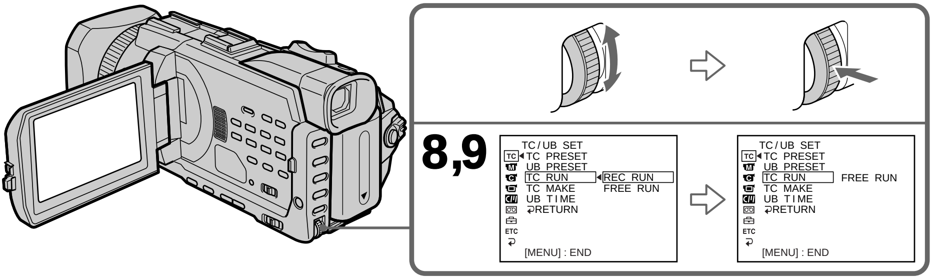

MENU
2
TC/UB SET
TC PRESET
UB PRESET
TC RUN
TC MAKE
UB TIME
RETURN
REGEN
PRESET
[MENU] : END
3-5
00:00:00:00
RESET
PRESET
RETURN
01:00:00:00
SET
CANCEL

(continued on the following page)

(7) Turn the SEL/PUSH EXEC dial to select SET, then press the dial.
(8) Turn the SEL/PUSH EXEC dial to select TC RUN, then press the dial.
(9) Turn the SEL/PUSH EXEC dial to select the desired running mode, then press the dial.

REC RUN:	Time code value advances only while recording. When making the time code continuous at back space editing, select this setting.
FREE RUN:	Time code advances freely regardless of the camcorder's current operation mode.

For more information on the running mode, see "Making the time code continuous at back space editing" on page 123.


8,9
TC/UB SET
TC PRESET
UB PRESET
TC RUN
REC RUN
FREE RUN
TC MAKE
UB TIME
RETURN
ETC
[MENU] : END
TC/UB SET
TC PRESET
UB PRESET
TC RUN
FREE RUN
TC MAKE
UB TIME
RETURN
ETC
[MENU] : END

To cancel the time code setting

Select CANCEL with the SEL/PUSH EXEC dial in step 7.

To reset the time code

Select RESET with the SEL/PUSH EXEC dial in step 4.

Making the time code continuous at back space editing

Set TC MAKE to REGEN in the menu settings to make the time code continuous when the recording has been interrupted or when the cassette tape has been removed from the camcorder between shootings.
When the camcorder is in recording pause mode, the recorded time code is read from the tape and synchronized to the internal time code generator.

Once you set TC MAKE to REGEN in the menu settings
Even if TC RUN is set to FREE RUN in the menu settings, the running mode is automatically set to REC RUN.

Setting the user bits value

You can set the user bits as eight-digit hexadecimal values (base 16) to have the date, time, scene number, and other information inserted into the time code.

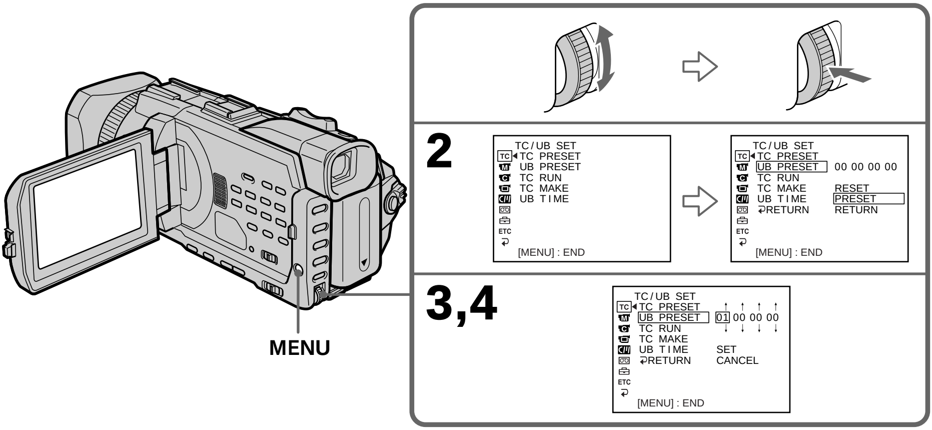
(1) Set the POWER switch to CAMERA or VCR.

(2) Press MENU, then turn the SEL/PUSH EXEC dial to set UB PRESET in TC to PRESET, then press the dial.

(3) Set up the first two digits. Turn the SEL/PUSH EXEC dial to select the number, then press the dial.

(4) Repeat step 3 to set up the other digits.

(5) Turn the SEL/PUSH EXEC dial to select SET, then press the dial.


MENU
2
TC/UB SET
TC PRESET
UB PRESET
TC RUN
TC MAKE
UB TIME
ETC
[MENU] : END
TC/UB SET
TC PRESET
UB PRESET 00 00 00 00
TC RUN
TC MAKE RESET
UB TIME PRESET
RETURN RETURN
[MENU] : END
3,4
TC/UB SET
TC PRESET
UB PRESET 01 00 00 00
TC RUN
TC MAKE
UB TIME SET
RETURN CANCEL
[MENU] : END

To cancel the user bits setting

Select CANCEL with the SEL/PUSH EXEC dial in step 5.

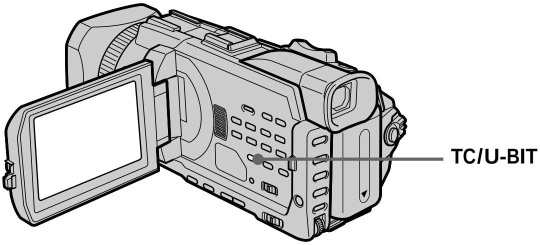
To reset the user bits

Select RESET with the SEL/PUSH EXEC dial in step 2.

When UB TIME is set to ON in the menu setting

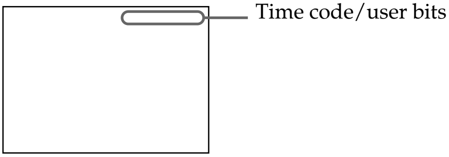
You can set the user bits to the real time clock. We recommend that you set the time beforehand.

Switching the time value



Press TC/U-BIT. Each time you press TC/U-BIT, the time value changes between the time code and user bits.

TC: Displays the time code. This is indicated as “00:00:00:00”.
U-BIT: Displays user bits. This is indicated as “00 00 00 00”.



Note

The time code and user bits cannot be displayed properly if the tape does not have time code and/or user bits recordings or if the time code was recorded using a non-compatible method.

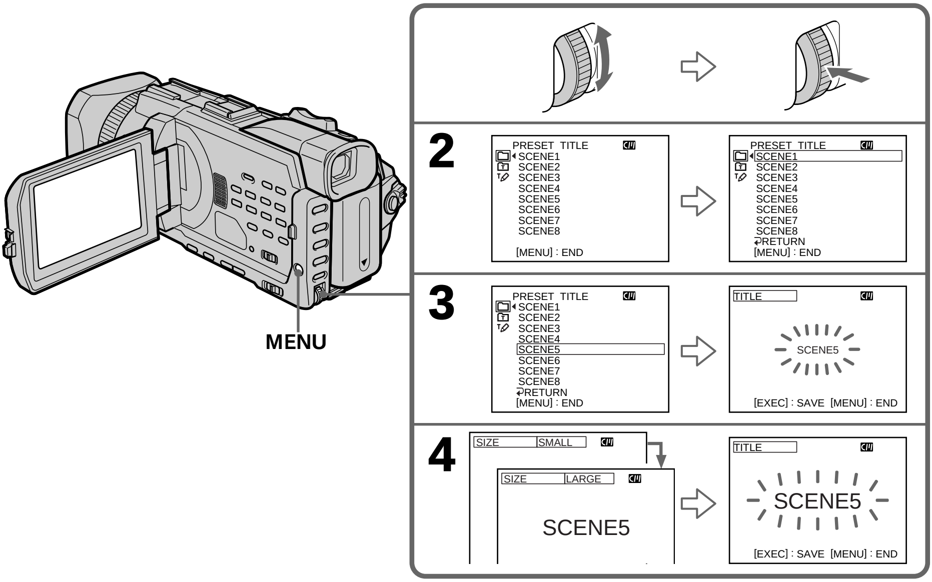
Superimposing a title

CM only If you use a tape with cassette memory, you can superimpose the title. When you play back the tape, the title is displayed for five seconds from the point where you superimposed it.

(1) In the recording , recording standby, playback or playback pause, press MENU, then select TITLE in CM with the SEL/PUSH EXEC dial (p. 219).
(2) Turn the SEL/PUSH EXEC dial to select 🗀, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select the desired title, then press the dial. The title flashes.
(4) Change the colour, size, or position, if necessary.
① Turn the SEL/PUSH EXEC dial to select COLOUR, SIZE or POSITION, then press the dial. The selected item appears.
② Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
③ Repeat steps ① and ② until the title is laid out as desired.
(5) Press the SEL/PUSH EXEC dial again to complete the setting.

In the recording, playback or playback pause:
The TITLE SAVE indicator appears on the screen for five seconds and the title is set.

In the standby:
The TITLE indicator appears. When you press START/STOP to start recording, TITLE SAVE appears on the screen for five seconds, and the title is set.


MENU
2
PRESET TITLE
SCENE1
SCENE2
SCENE3
SCENE4
SCENE5
SCENE6
SCENE7
SCENE8
[MENU] : END
RETURN
3
TITLE
SCENE5
[EXEC] : SAVE [MENU] : END
4
SIZE SMALL
SIZE LARGE
SCENE5

If you set the write-protect tab of the tape to lock

You cannot superimpose or erase the title. Slide the write-protect tab to release the write protection.

To use a custom title

If you want to use a custom title, select T in step 2.

If the tape has a blank portion

You cannot superimpose a title on the portion.

If the tape has a blank portion between recorded portions

Titles may not be displayed correctly.

Titles superimposed with your camcorder

The point you superimposed the title may be detected as an index signal when searching a recording with other video equipment.

If the tape has too many number of data

You may not be able to superimpose a title because memory becomes full. In this case, delete data you do not need.

To not display titles

Set TITLE DSPL to OFF in the menu settings (p. 219).

Title setting

- The title colour changes as follows:
  WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE
- The title size changes as follows:
  SMALL ←→ LARGE
  You cannot input 13 characters or more in LARGE size. If you input more than 12 characters, the title size returns to SMALL even if you select LARGE.
- If you select SMALL, you have nine choices for the title position.
  If you select LARGE, you have eight choices for the title position.

Cassette memory

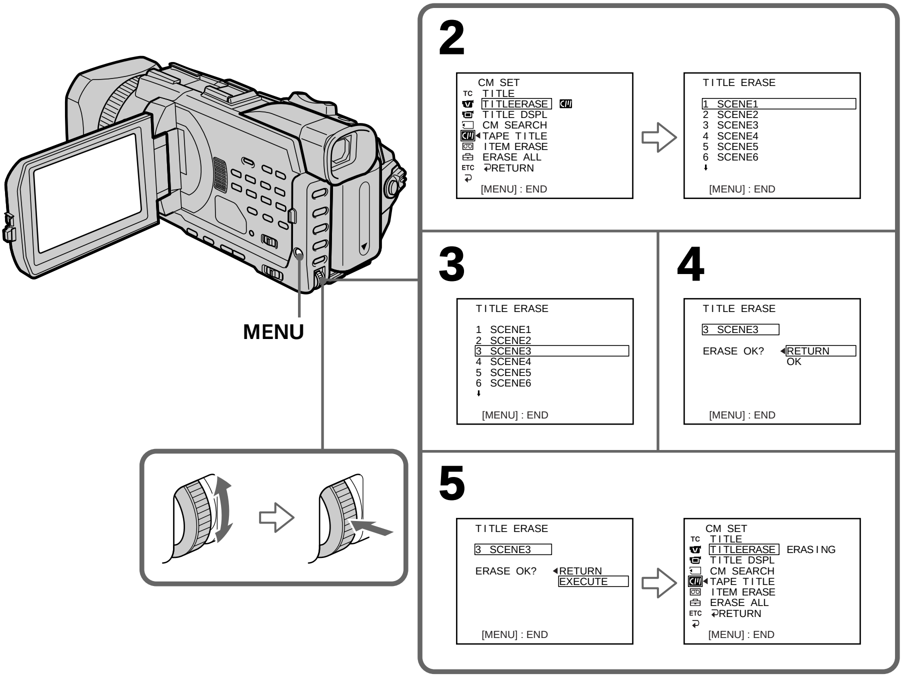
The tape with cassette memory can hold 106 title data.

If the "CIII FULL" mark appears

The cassette memory is full. Erase unwanted titles.

Erasing a title

(1) Set the POWER switch to CAMERA or VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select TITLEERASE in ▣, then press the dial (p. 219).
(3) Turn the SEL/PUSH EXEC dial to select the title you want to erase, then press the dial. ERASE OK ? indicator appears.
(4) Make sure that the title is the one you want to erase, and turn the SEL/PUSH EXEC dial to select OK, then press the dial. OK changes to EXECUTE.
(5) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial. The ERASING flashes on the screen. When the title is erased, the COMPLETE is displayed.


MENU
2
CM SET
TITLE
TITLEERASE
TITLE DSPL
CM SEARCH
TAPE TITLE
ITEM ERASE
ERASE ALL
RETURN
[MENU] : END
TITLE ERASE
1 SCENE1
2 SCENE2
3 SCENE3
4 SCENE4
5 SCENE5
6 SCENE6
[MENU] : END
3
TITLE ERASE
1 SCENE1
2 SCENE2
3 SCENE3
4 SCENE4
5 SCENE5
6 SCENE6
[MENU] : END
4
TITLE ERASE
3 SCENE3
ERASE OK?
RETURN
OK
[MENU] : END
5
TITLE ERASE
3 SCENE3
ERASE OK?
RETURN
EXECUTE
[MENU] : END
CM SET
TITLE
TITLEERASE
ERASING
TITLE DSPL
CM SEARCH
TAPE TITLE
ITEM ERASE
ERASE ALL
RETURN
[MENU] : END

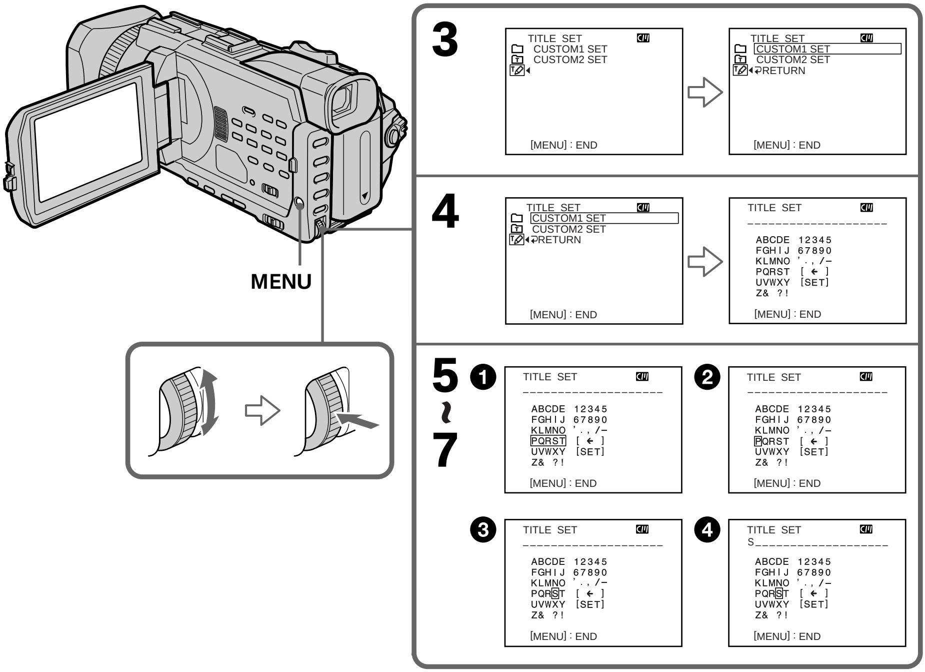
To cancel erasing a title

Select RETURN with the SEL/PUSH EXEC dial in step 4 or 5.

Making your own titles

You can make up to two titles and store them in the memory of your camcorder. Each title can have up to 20 characters.

(1) Set the POWER switch to CAMERA or VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select TITLE in ▣, then press the dial (p. 219).
(3) Turn the SEL/PUSH EXEC dial to select T✎ , then press the dial.
(4) Turn the SEL/PUSH EXEC dial to select CUSTOM1 SET or CUSTOM2 SET, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select the column of the desired character, then press the dial.
(6) Turn the SEL/PUSH EXEC dial to select the desired character, then press the dial.
(7) Repeat steps 5 and 6 until you have selected all characters and completed the title.
(8) To finish making your own titles, turn the SEL/PUSH EXEC dial to select [SET], then press the dial.


MENU
3
TITLE SET
CUSTOM1 SET
CUSTOM2 SET
RETURN
[MENU] : END
4
ABCDE 12345
FGHIJ 67890
KLMNO ' . , / –
PQRST [←]
UVWXY [SET]
Z& ? !
5
~
7
①
②
③
④
S

To change a title you have stored

In step 4, select CUSTOM1 SET or CUSTOM2 SET, depending on which title you want to change, then press the SEL/PUSH EXEC dial. Turn the SEL/PUSH EXEC dial to select [←], then press the dial to delete the title. The last character is erased. Enter the new title as desired.

To delete the title

Select [←]. The last character is erased.

To enter a space

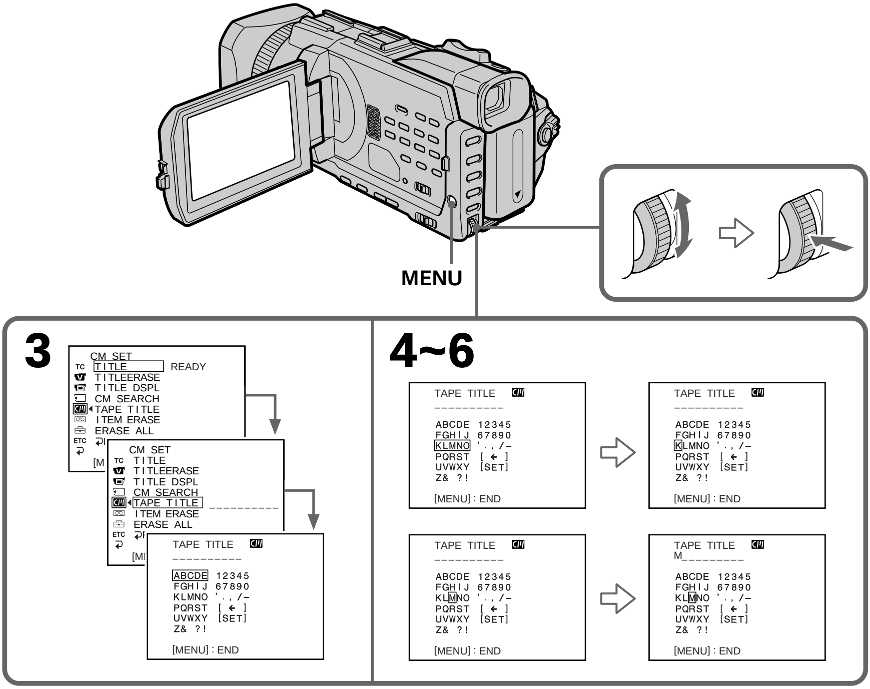
Select [Z&   ? !], then select the blank part.

Labelling a cassette

CM only

If you use a cassette with cassette memory, you can label a cassette. Labels can consist of up to 10 characters and is stored in cassette memory. When you insert the labelled cassette and when the POWER switch is set to CAMERA or VCR, the label is displayed for about five seconds.

(1) Insert the cassette you want to label.
(2) Set the POWER switch to CAMERA or VCR.
(3) Press MENU, then turn the SEL/PUSH EXEC dial to select TAPE TITLE in , then press the dial (p. 219). Tape title display appears.
(4) Turn the SEL/PUSH EXEC dial to select the column of the desired character, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select the desired character, then press the dial.
(6) Repeat steps 4 and 5 until you finish the label.
(7) Turn the SEL/PUSH EXEC dial to select [SET], then press the dial.
The label is stored in the memory.


MENU
3
CM SET
TITLE
READY
TITLEERASE
TITLE DSPL
CM SEARCH
TAPE TITLE
ITEM ERASE
ERASE ALL
TAPE TITLE
ABCDE 12345
FGHIJ 67890
KLMNO '., /–
PQRST [←]
UVWXY [SET]
Z& ?!
[MENU] : END
4~6
M_________

To erase the label you have made

In step 4 turn the SEL/PUSH EXEC dial to select [←], then press the dial. The last character is erased.

To change the label you have made

Insert the cassette to change the label, and operate in the same way to make a new label.

If you set the write-protect tab of the cassette to lock
You cannot label the tape. Slide the write-protect tab to release the write protection.

If the tape has too many index signals
You may not be able to label a cassette because the cassette memory becomes full. In this case, delete data you do not need.

If you have superimposed titles in the cassette
When the label is displayed, up to four titles also appear.

When the "-----" indicator has fewer than 10 spaces
The cassette memory is full.
The "-----" indicates the number of characters you can select for the label.

To delete the title
Select [←]. The last character is erased.

To enter a space
Select [Z&   ? !], then select the blank part.

Erasing the cassette memory data

You can erase data stored in cassette memory, each item's data can be erased separately. You can also erase all items' data once.

Erasing each item's data separately

(1) Set the POWER switch to CAMERA or VCR.

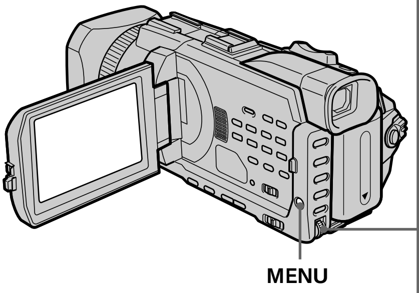
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select ITEM ERASE in CM, then press the dial.

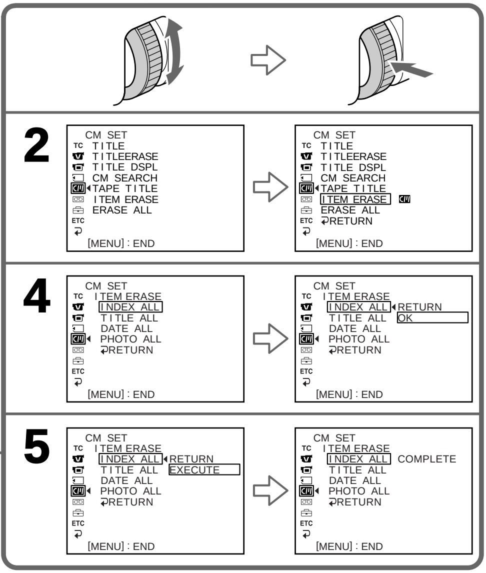
(3) Turn the SEL/PUSH EXEC dial to select the item that you want to erase its data, then press the dial.

Item	Meaning
INDEX ALL	Erases all the index data.
TITLE ALL	Erases all the title data.
DATE ALL	Erases all the date data.
PHOTO ALL	Erases all the photo data.

(4) Make sure that the item is the one you want to erase, and turn the SEL/PUSH EXEC dial to select OK, then press the dial.
OK changes to EXECUTE.

(5) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
The ERASING flashes on the screen. When the item is erased, the COMPLETE is displayed.



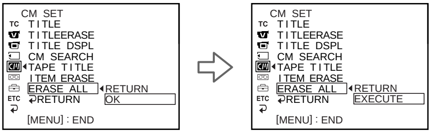

2
CM SET
TITLE
TITLEERASE
TITLE DSPL
CM SEARCH
TAPE TITLE
ITEM ERASE
ERASE ALL
RETURN
[MENU] : END
4
ITEM ERASE
INDEX ALL
TITLE ALL
DATE ALL
PHOTO ALL
RETURN
OK
5
EXECUTE
COMPLETE

To cancel erasing

Select RETURN with the SEL/PUSH EXEC dial in step 4 or 5.

Erasing all the data in cassette memory

(1) Set the POWER switch to CAMERA or VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select ERASE ALL in CM, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select OK, then press the dial.
OK changes to EXECUTE.


CM SET
TC
TITLE
TITLEERASE
TITLE DSPL
CM SEARCH
TAPE TITLE
ITEM ERASE
ERASE ALL
RETURN
RETURN
OK
ETC
[MENU] : END
CM SET
TC
TITLE
TITLEERASE
TITLE DSPL
CM SEARCH
TAPE TITLE
ITEM ERASE
ERASE ALL
RETURN
RETURN
EXECUTE
ETC
[MENU] : END

(4) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
The ERASING flashes on the screen. When the data are erased, the COMPLETE is displayed.

To cancel erasing

Select RETURN with the SEL/PUSH EXEC dial in step 3 or 4.

Using a "Memory Stick" – Introduction

You can record and play back images on the "Memory Stick" supplied with your camcorder. You can easily play back, record or delete images. You can exchange image data with other equipment such as your computer etc., using the USB cable for the "Memory Stick" supplied with your camcorder.

On file format

Still image (JPEG)

Your camcorder compresses image data in JPEG format (extension .jpg).

Moving picture (MPEG)

Your camcorder compresses picture data in MPEG format (extension .mpg).

Typical image data file name

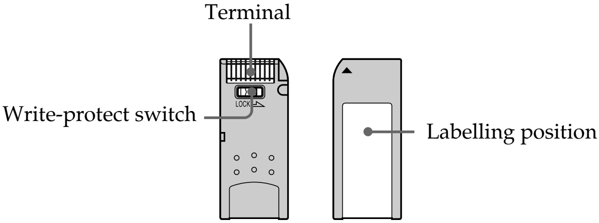
Still image

100-0001:	This file name appears on the screen of your camcorder.
Dsc00001.jpg:	This file name appears on the display of your computer.

Moving picture

MOV00001:	This file name appears on the screen of your camcorder.
Mov00001.mpg:	This file name appears on the display of your computer.

Using a "Memory Stick"



- You cannot record or erase images when the write-protect switch on the "Memory Stick" is set to LOCK.
- The position and shape of the write-protect switch may be different depending on the model.
- We recommend backing up important data on the hard disk of your computer.
- Image data may be damaged in the following cases:
  - If you eject the "Memory Stick" or turn the power off during reading or writing.
  - If you use a "Memory Stick" near static electricity or magnetic fields.
- Prevent metallic objects or your finger from coming into contact with the metal parts of the terminal.
- Stick the label at the labelling position.
- Do not bend, drop or apply strong shock to a "Memory Stick."
- Do not disassemble or modify a "Memory Stick."
- Do not let a "Memory Stick" get wet.
- Do not use or keep a "Memory Stick" in locations that are:
  - Extremely hot such as in a car parked in the sun or under the scorching sun.
  - Under direct sunlight
  - Very humid or subject to corrosive gases
- When you carry or store a "Memory Stick," put it in its case.

“Memory Stick” formatted on computer

The “Memory Stick” formatted on Windows OS or Macintosh computers is not guaranteed compatible with your camcorder.

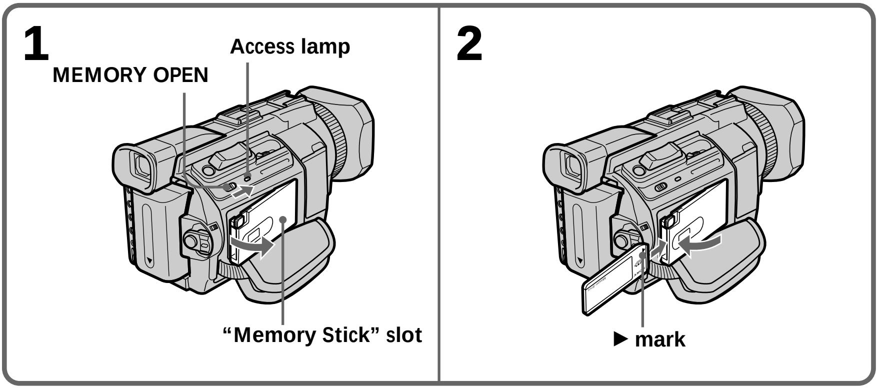
Notes on image data compatibility

- Image data files recorded on the “Memory Stick” by your camcorder conform with the Design Rules for Camera File Systems universal standard established by the JEITA (Japan Electronics and Information Technology Industries Association). You cannot play back on your camcorder still images recorded on other equipment (DSR-PD100P/PD100AP, DCR-TRV890E/TRV900/TRV900E, DKC-FP3 or DSC-D700/D770) that does not conform with this universal standard. (These models are not sold in some areas.)
- If you cannot use the “Memory Stick” that is used with other equipment, format it with this camcorder (p. 218). However, formatting erases all information on the “Memory Stick.”

- “Memory Stick” and MEMORY STICK ™ are trademarks of Sony Corporation.
- All other product names mentioned here may be the trademarks or registered trademarks of their respective companies.
  “TM” and “®” are not mentioned in each case in this manual.

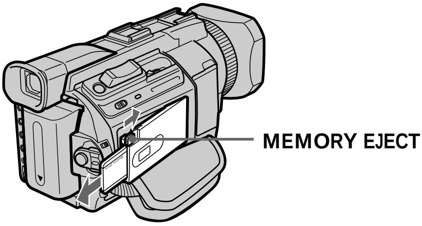
Inserting a “Memory Stick”

(1) Slide the MEMORY OPEN in the direction of the arrow to open the “Memory Stick” slot.
(2) Insert a “Memory Stick” in the “Memory Stick” slot as far as it can go with the ▶ mark facing up as illustrated. Close the “Memory Stick” slot.



Ejecting a “Memory Stick”

Open the “Memory Stick” slot following step 1 described above. Press MEMORY EJECT once lightly to eject it.



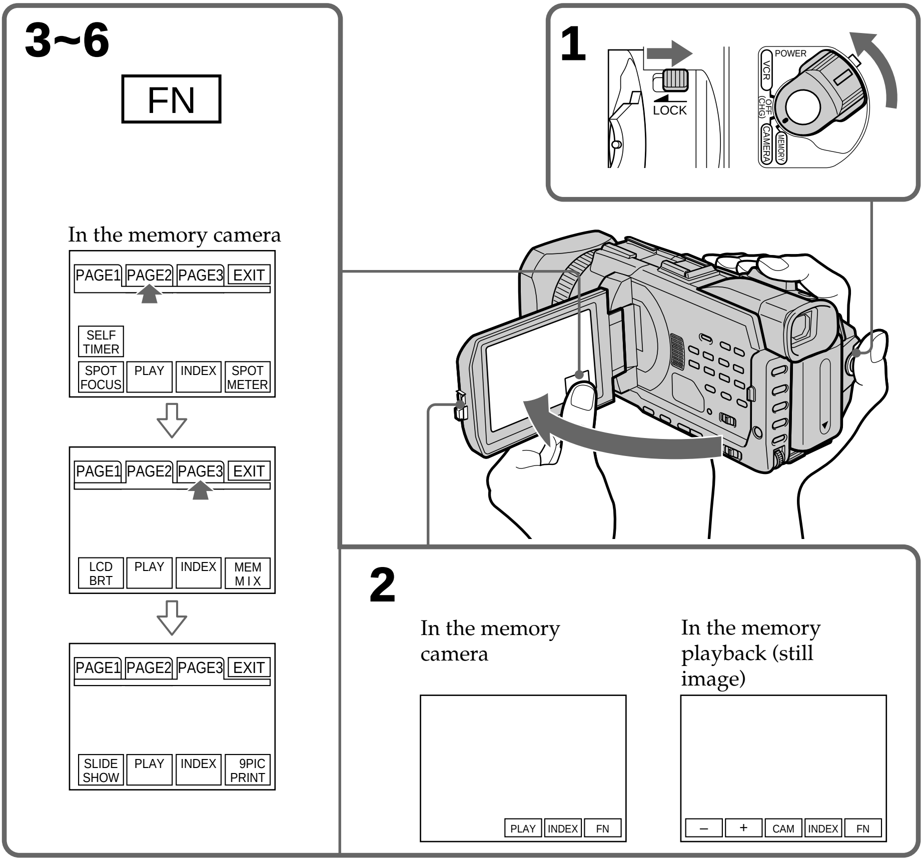
While the access lamp is lit or flashing
Do not shake or knock your camcorder because your camcorder is reading the data from the “Memory Stick” or recording the data on the “Memory Stick.” Do not turn the power off, eject the “Memory Stick.” Otherwise, image data may become damaged.

If “ MEMORYSTICK ERROR” is displayed
Reinsert the “Memory Stick” a few times. The “Memory Stick” may be damaged if the indicator is still displayed. If this occurs, use another “Memory Stick.”

Using a touch panel

Most operation buttons for use of a "Memory Stick" are displayed on the LCD screen. Touch the LCD screen directly with your finger to operate each function.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press OPEN to open the LCD panel. Operation buttons appear on the LCD screen. You can switch the memory playback/memory camera by pressing PLAY/CAM.
(3) Press FN. Operation buttons appear on the LCD screen.
(4) Press PAGE2 to go to PAGE2. Operation buttons appear on the LCD screen.
(5) Press PAGE3 to go to PAGE3. Operation buttons appear on the LCD screen.
(6) Press a desired operation item.
Refer to relevant pages for each function.


3~6
FN
In the memory camera
PAGE1 PAGE2 PAGE3 EXIT
SELF TIMER
SPOT FOCUS
PLAY
INDEX
SPOT METER
PAGE1 PAGE2 PAGE3 EXIT
LCD BRT
PLAY
INDEX
MEM MIX
PAGE1 PAGE2 PAGE3 EXIT
SLIDE SHOW
PLAY
INDEX
9PIC PRINT
1
LOCK
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
2
In the memory camera
PLAY
INDEX
FN
In the memory playback (still image)
–
+
CAM
INDEX
FN

To return to FN

Press EXIT.

To execute settings

Press ↩ OK.

To cancel settings

Press ↩ OFF to return to PAGE1/PAGE2/PAGE3.

Notes

- When using the touch panel, press operation buttons with your thumb supporting the LCD screen from the back side of it or press those buttons lightly with your index finger.
- Do not press the LCD screen with sharp-pointed objects such as a pen.
- Do not press the LCD screen too hard.
- Do not touch the LCD screen with wet hands.
- If FN is not on the LCD screen, touch the LCD screen lightly to make it appear. You can control the display with DISPLAY/TOUCH PANEL on your camcorder.
- When operation buttons do not work even if you press them, an adjustment is required (CALIBRATION) (p. 246).
- When the LCD screen gets dirty, clean it with the supplied cleaning cloth.

When executing each item

The green bar appears above the item.

If the items are not available

The colour of the items changes to gray.

Press FN to display the following buttons:

In the memory camera

PAGE1	SELFTIMER, SPOT FOCUS, PLAY, INDEX, SPOT METER
PAGE2	LCD BRT, PLAY, INDEX, MEM MIX
PAGE3	SLIDE SHOW, PLAY, INDEX, 9PIC PRINT

In the memory playback

PAGE1	PB ZOOM, CAM, INDEX, DELETE, $\boxed{+}$, $\boxed{-}$
PAGE2	LCD BRT, CAM, INDEX, DATA CODE, $\boxed{+}$, $\boxed{-}$
PAGE3	SLIDE SHOW, CAM, INDEX, 9PIC PRINT, $\boxed{+}$, $\boxed{-}$

Selecting the still image quality

You can select the image quality in still image recording. The default setting is SUPER FINE.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select STILL SET in □, then press the dial. (p. 217)
(3) Turn the SEL/PUSH EXEC dial to select QUALITY , then press the dial.
(4) Turn the SEL/PUSH EXEC dial to select the desired image quality , then press the dial.

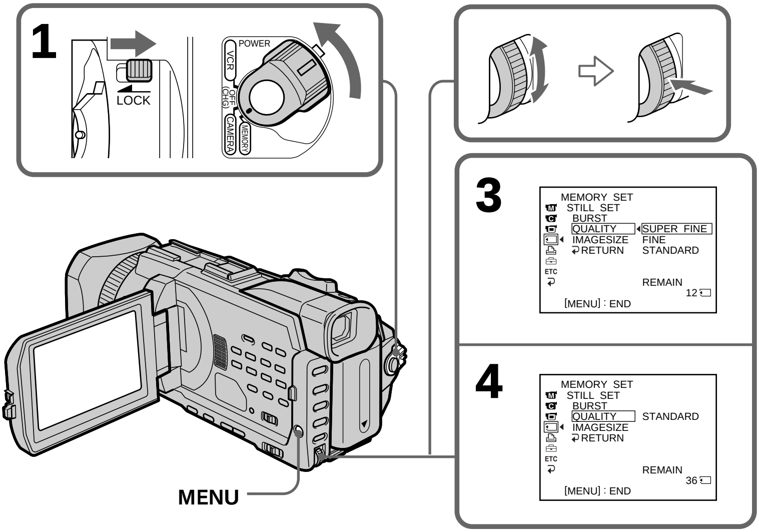

1
LOCK
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
MENU
3
MEMORY SET
STILL SET
BURST
QUALITY
IMAGESIZE
RETURN
SUPER FINE
FINE
STANDARD
ETC
REMAIN
12
[MENU] : END
4
MEMORY SET
STILL SET
BURST
QUALITY
IMAGESIZE
RETURN
STANDARD
ETC
REMAIN
36
[MENU] : END

Image quality settings

Setting	Meaning
SUPER FINE (SFN)	This is the highest image quality in your camcorder. The number of still images you can record is less than in FINE mode. Super fine images are compressed to about 1/3.
FINE (FINE)	Use this mode when you want to record high quality images. Fine images are compressed to about 1/6.
STANDARD (STD)	This is the standard image quality in your camcorder. Standard images are compressed to about 1/10.

Note

In some cases, changing the image quality may not affect the image quality, depending on the type of images you are shooting.

Differences in image quality

Recorded images are compressed in JPEG format before being stored in memory. The memory capacity allotted to each image varies depending on the selected image quality and image size. Details are shown in the table below. (You can select 1152 × 864 or 640 × 480 image size in the menu settings.)

1152 × 864 image size

Image quality	Memory capacity
SUPER FINE	About 600 KB
FINE	About 300 KB
STANDARD	About 200 KB

640 × 480 image size

Image quality	Memory capacity
SUPER FINE	About 190 KB
FINE	About 100 KB
STANDARD	About 60 KB

Image quality indicator

The image quality indicator is not displayed during playback.

When you select QUALITY

The number of images you can shoot in the currently selected image quality appears on the screen.

Selecting the image size

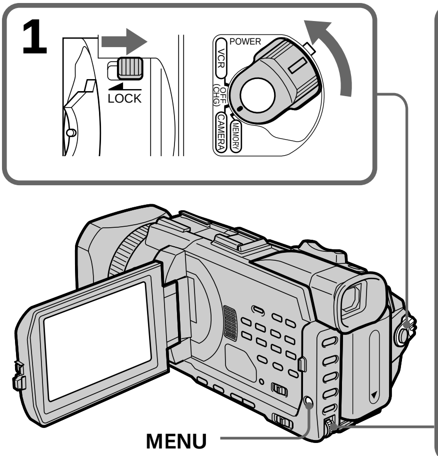
You can select either of two image sizes
Still images: 1152 × 864 or 640 × 480. (When the POWER switch is set to CAMERA or VCR, the image size is automatically set to 640 × 480.)
The default setting is 1152 × 864.
Moving pictures: 320 × 240 or 160 × 112
The default setting is 320 × 240.

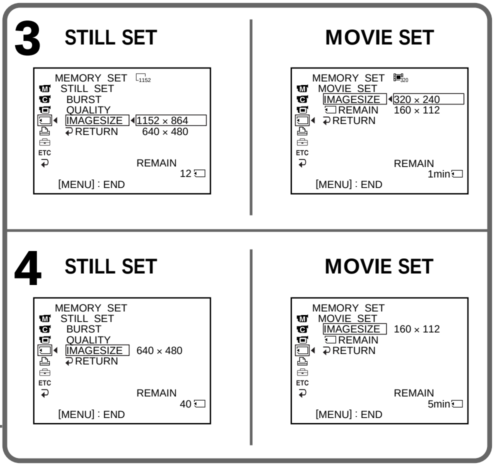
(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).

(2) Press MENU, then turn the SEL/PUSH EXEC dial to select STILL SET (still image) or MOVIE SET (moving picture) in ▭, then press the dial (p. 217).

(3) Turn the SEL/PUSH EXEC dial to select IMAGESIZE, then press the dial.

(4) Turn the SEL/PUSH EXEC dial to select the desired image size, then press the dial.
The indicator changes as follows:
Still images: 1152 ↔ 640
Moving pictures: 320 ↔ 160





3 STILL SET

MEMORY SET 1152
STILL SET
BURST
QUALITY
IMAGESIZE 1152 × 864
RETURN 640 × 480
ETC
REMAIN 12
[MENU] : END

3 MOVIE SET

MEMORY SET 320
MOVIE SET
IMAGESIZE 320 × 240
REMAIN 160 × 112
RETURN
ETC
REMAIN 1min
[MENU] : END

4 STILL SET

MEMORY SET
STILL SET
BURST
QUALITY
IMAGESIZE 640 × 480
RETURN
ETC
REMAIN 40
[MENU] : END

4 MOVIE SET

MEMORY SET
MOVIE SET
IMAGESIZE 160 × 112
REMAIN
RETURN
ETC
REMAIN 5min
[MENU] : END

Image size settings

Setting	Meaning	Indicator
1152 × 864	Records 1152 × 864 still images.	1152
640 × 480	Records 640 × 480 still images.	640
320 × 240	Records 320 × 240 moving pictures.	320
160 × 112	Records 160 × 112 moving pictures.	160

Approximate number of still images you can record on a “Memory Stick”

The number of images you can record varies depending on which image quality and image size you select and the complexity of the subject.

Image quality	Image size	Type of the “Memory Stick”				
		8MB (supplied)	16MB (optional)	32MB (optional)	64MB (optional)	128MB (optional)
SUPER FINE	1152 × 864	12 images	25 images	51 images	100 images	205 images
	640 × 480	40 images	80 images	160 images	325 images	650 images
FINE	1152 × 864	25 images	50 images	100 images	205 images	415 images
	640 × 480	80 images	160 images	325 images	650 images	1310 images
STANDARD	1152 × 864	37 images	74 images	150 images	300 images	600 images
	640 × 480	120 images	240 images	485 images	980 images	1970 images

Approximate time of moving pictures you can record on a “Memory Stick”

The time of moving pictures you can record varies depending on which image size you select and the complexity of the subject.

Image size	Type of the “Memory Stick”				
	8MB (supplied)	16MB (optional)	32MB (optional)	64MB (optional)	128MB (optional)
320 × 240	1 min. 20 sec.	2 min. 40 sec.	5 min. 20 sec.	10 min. 40 sec.	21 min. 20 sec.
160 × 112	5 min. 20 sec.	10 min. 40 sec.	21 min. 20 sec.	42 min. 40 sec.	85 min. 20 sec.

The table above shows approximate number and times of still images and moving pictures you can record on a “Memory Stick” formatted by your camcorder.

Note

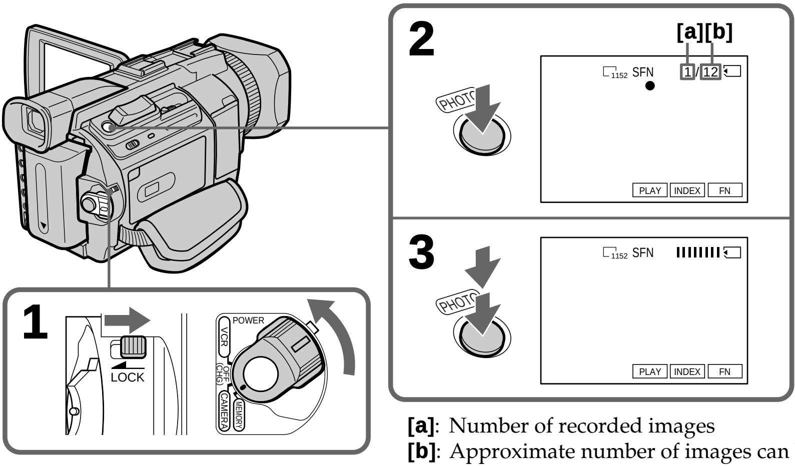
When still images recorded on your camcorder in 1152 × 864 size are played back on other equipment that does not support 1152 × 864 size, the full image may not appear, or images in the reduced size may appear in the centre of the screen.

Recording still images on a "Memory Stick" – Memory Photo recording

You can record still images on a "Memory Stick."

Before operation
Insert a "Memory Stick" into your camcorder.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press PHOTO lightly. The green ● mark stops flashing, then lights up. The brightness of the image and focus are adjusted, being targeted for the middle of the image and are fixed. Recording does not start yet.
(3) Press PHOTO deeper.
The still image will be displayed after the shutter sounds.
Recording is complete when the bar scroll indicator disappears.
The image when you pressed PHOTO deeper will be recorded on the "Memory Stick."


2
[a][b]
1152 SFN
1/12
PHOTO
PLAY
INDEX
FN
3
1152 SFN
PHOTO
PLAY
INDEX
FN
1
LOCK
POWER
VCR
OFF (CHG)
CAMERA
MEMORY

[a]: Number of recorded images
[b]: Approximate number of images can be recorded on the "Memory Stick"

You can record still images on a "Memory Stick" in the tape recording or recording standby

For the details, see p. 48.

When the POWER switch is set to MEMORY

The following functions do not work:
– Digital zoom
– Wide mode
– Fader
– Digital effect
– Sports lesson of PROGRAM AE (The indicator flashes.)
– Title

While you are recording a still image

You can neither turn off the power nor press PHOTO.

When you press PHOTO on the Remote Commander

Your camcorder immediately records the image that is on the screen when you press the button.

When you press PHOTO lightly in step 2

The image momentarily flickers. This is not a malfunction.

Recording data

The recording data (date/time or various settings when recorded) are not displayed while recording. However, they are recorded automatically onto the "Memory Stick." To display the recording data, press DATA CODE on PAGE2 during playback. You can also use the Remote Commander for this operation (p. 43).

When the POWER switch is set to MEMORY

The angle of view is slightly larger compared with the angle of view when the POWER switch is set to CAMERA.

Recording images continuously

You can record still images continuously. Before recording, select one of the four modes described below in the menu settings.

NORMAL [a]
Your camcorder shoots up to four still images in 1152 × 864 size or 13 still images in 640 × 480 size at about 0.5 sec intervals. (❏)

EXP BRKTG (Exposure Bracketing)
Your camcorder automatically shoots three images at about 0.5 sec intervals at different exposures. (BRK)

MULTI SCRN (Multi Screen) [b]
Your camcorder shoots nine still images at about 0.4 sec intervals and displays the images on a single page divided into nine boxes. Still images are recorded in 640 × 480 size. (▦)

[a]

[b]

Recording still images on a “Memory Stick” – Memory Photo recording

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press MENU, then select BURST while STILL SET is selected in ▭, then press the dial (p. 217).
(3) Turn the SEL/PUSH EXEC dial to select the desired setting, then press the dial.
(4) Press MENU to make the menu setting disappear.
(5) Press PHOTO deeper.

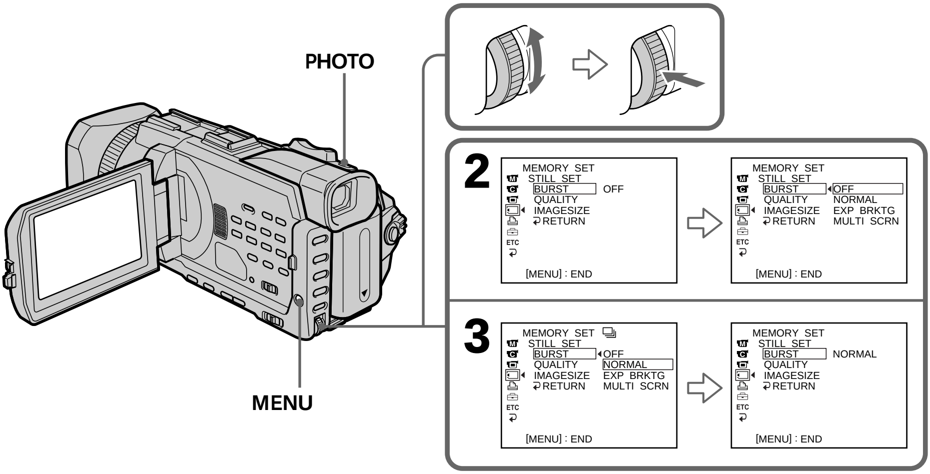


PHOTO
MENU
2
MEMORY SET
STILL SET
BURST OFF
QUALITY
IMAGESIZE
RETURN
ETC
[MENU] : END
MEMORY SET
STILL SET
BURST OFF
QUALITY NORMAL
IMAGESIZE EXP BRKTG
RETURN MULTI SCRN
ETC
[MENU] : END
3
MEMORY SET
STILL SET
BURST OFF
QUALITY NORMAL
IMAGESIZE EXP BRKTG
RETURN MULTI SCRN
ETC
[MENU] : END
MEMORY SET
STILL SET
BURST NORMAL
QUALITY
IMAGESIZE
RETURN
ETC
[MENU] : END

If the capacity of the “Memory Stick” becomes full

” FULL” appears on the screen, and you cannot record a still image on this “Memory Stick.”

The number of still images in continuous shooting

The number of still images you can shoot continuously varies depending on the image size and the capacity of the “Memory Stick.”

During recording still images continuously

The flash (optional) does not work.

The effect of exposure bracketing (EXP BRKTG)

The effect may not appear clearly on the LCD screen.
Checking images on a TV monitor or computer display for the expected effect is recommended.

When selecting NORMAL

Recording continues up to the maximum number of still images during pressing PHOTO deeper. Release PHOTO to stop recording.

When shooting with the self-timer or the Remote Commander

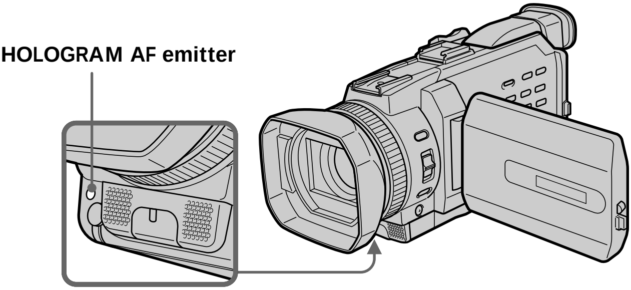
Your camcorder automatically records up to the maximum recordable number of still images.

If there is space remaining on the “Memory Stick” for less than three photos

You cannot carry out the exposure bracketing (EXP BRKTG). “ FULL” is displayed when you press PHOTO.

Shooting with an auxiliary light – HOLOGRAM AF

The HOLOGRAM AF is an auxiliary light source used for focusing on subjects in dark places when you attach the optional flash.
Set HOLOGRAM F in 📷 to AUTO in the menu settings. (The default setting is AUTO.)
When ✲ON appears on the screen in a dark place, press PHOTO lightly. Then the auxiliary light will automatically emit until the subject is focused.



About HOLOGRAM AF

"HOLOGRAM AF (Auto-Focus)," an application of laser holograms, is a new AF optical system that enables still image shooting in dark places. Having gentler radiation than conventional high-brightness LEDs or lamps, the system satisfies Laser Class 1 (*) specification and thus maintains higher safety for human eyes.
No safety problems will be caused by directly looking into the HOLOGRAM AF emitter at a close range. However, it is not recommended to do so, because you may experience such effects like several minutes of image residual and dazzling, that you encounter after looking into a flashlight.

* HOLOGRAM AF satisfies Class 1(time base 30 000 seconds), specified in all of JIS (Japan), IEC(EU), and FDA(US) industry standards.
Complying with these standards identifies the laser product to be safe, under a condition that a human looks at the laser light either directly or even through a lens for 30 000 seconds.

Notes

- You can use HOLOGRAM AF only when the optional flash is attached.
- Attaching the lens hood or a conversion lens (optional) may obstruct the HOLOGRAM AF light and make focusing difficult. We recommend removing the lens hood or a conversion lens while shooting with the HOLOGRAM AF.
- If enough light does not reach the subject even if the HOLOGRAM AF emitter is emitted, the subject will not be focused.
- Focusing may be hampered if the light emitted from the HOLOGRAM AF is blocked by an obstruction.
- Focus is achieved as long as HOLOGRAM AF light reaches to the subject even if its light is slightly out of the middle position of the subject.
- If HOLOGRAM AF light is dim, it sometimes becomes difficult to focus. If this happens, wipe the HOLOGRAM AF emitter with a soft, dry cloth.

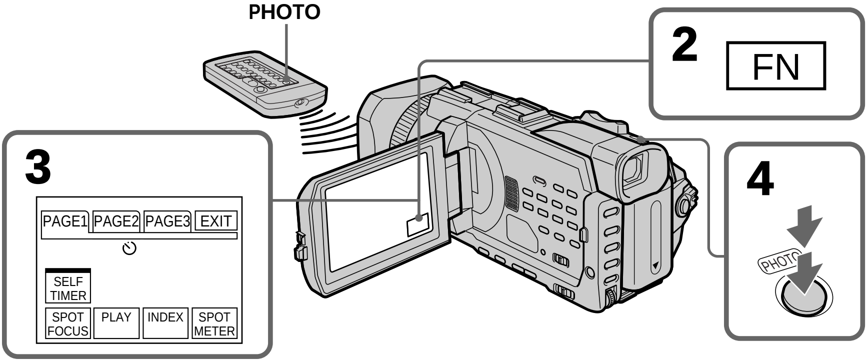
The HOLOGRAM AF does not emit when:

– Focus manually
– Spot Focus
– Sunset & moon of PROGRAM AE
– Landscape of PROGRAM AE
– Continuous photo recording

Self-timer memory photo recording

You can record images on a “Memory Stick” with the self-timer. You can also use the Remote Commander for this operation.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press FN to display PAGE1.
(3) Press SELFTIMER.
The ⏲ (self-timer) indicator appears on the screen.
(4) Press PHOTO deeper.
Self-timer starts counting down from 10 with a beep. In the last two seconds of the countdown, the beep gets faster, then recording starts automatically.



To cancel the self-timer

Press SELFTIMER so that the ⏲ (self-timer) indicator disappears on the screen. You cannot stop the countdown.

Note

The self-timer is automatically cancelled when:
– Self-timer recording is finished.
– The POWER switch is set to OFF (CHG) or VCR.

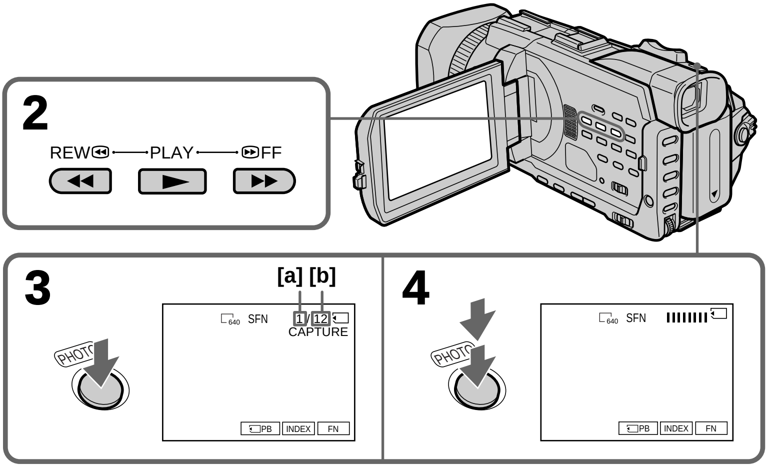
Recording images from a tape as still images

Your camcorder can read moving picture data recorded on a tape and record it as a still image on a “Memory Stick.” Your camcorder can also capture moving picture data through the input connector and record it as a still image on a “Memory Stick.”

Before operation

Insert a “Memory Stick” and the recorded tape into your camcorder.

(1) Set the POWER switch to VCR.
(2) Press ►. Moving pictures recorded on the tape are played back.
(3) Press PHOTO lightly until the picture you want to capture from the tape freezes and CAPTURE appears on the screen. Recording does not start yet.
To change from the selected image to another image, release PHOTO once and press it lightly again.
(4) Press PHOTO deeper. The image displayed on the screen will be recorded on the “Memory Stick.” Recording is complete when the bar scroll indicator disappears.



[a] : Number of the recorded images
[b] : Approximate number of the images that can be recorded on the “Memory Stick”

Image size of still images

Image size is automatically set to 640 × 480.

When the access lamp is lit or flashing

Do not shake or strike the unit. Also, do not turn the power off , eject the “Memory Stick.” Otherwise, image data may become damaged.

If “FORMAT ERROR” appears on the screen

The inserted “Memory Stick” is incompatible with your camcorder because its format does not conform with your camcorder. Check the format of the “Memory Stick.”

If you press PHOTO lightly in the playback

Your camcorder stops momentarily.

Sound recorded on a tape

You cannot record audio from a tape.

Titles already recorded on cassettes

You cannot record titles on a “Memory Stick.” Titles do not appear while you are recording a still image with PHOTO.

Recording date/time

The recording data (date/time) when it is recorded on a “Memory Stick” is recorded. Various settings are not recorded.
Data codes recorded on a tape cannot be recorded on a “Memory Stick.”

When you press PHOTO on the Remote Commander

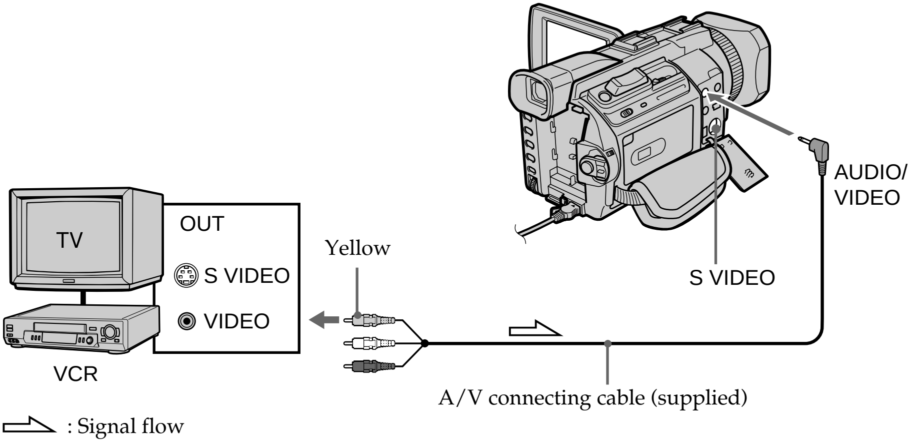
Your camcorder immediately records the image that is on the screen when you press the button.

Recording a still image from external equipment

Before operation
Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

(1) Set the POWER switch to VCR.
(2) Play back the recorded tape on the VCR, or turn the TV on to see the desired programme.
The image of the external equipment is displayed on the screen.
(3) Follow steps 3 and 4 on page 151.

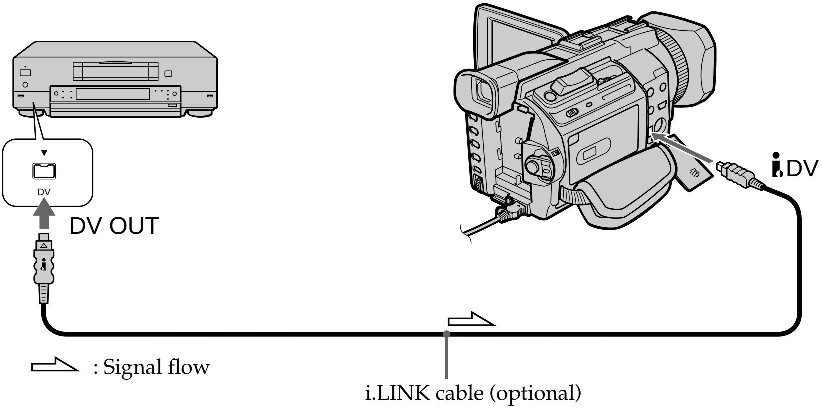
Using the A/V connecting cable



Connect the yellow plug of the A/V connecting cable to the video jack on the VCR or the TV.

If your TV or VCR has an S video jack
Pictures can be reproduced more faithfully by using an S video cable (optional).
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (optional) to the S VIDEO jacks of both your camcorder and the TV or VCR.

Using the i.LINK cable



Note

In the following instances, recording is interrupted or "▭ REC ERROR" is displayed, and recording is not possible. Reinsert the "Memory Stick" to record distortion-free images.

– When recording on a tape in a poor recording state, for example, on a tape that has been repeatedly used for dubbing.

– When attempting to input images that are distorted due to poor radio wave reception when a TV tuner unit is in use.

Superimposing a still image in the “Memory Stick” on an image – MEMORY MIX

You can superimpose a still image you have recorded on the “Memory Stick” on the moving picture you are recording. You can record the superimposed images on a tape or a “Memory Stick.” (However, you can record only superimposed still images on the “Memory Stick.”)

M. CHROM (memory chroma key)
You can swap a blue area of a still image such as an illustration or a frame with a moving picture.

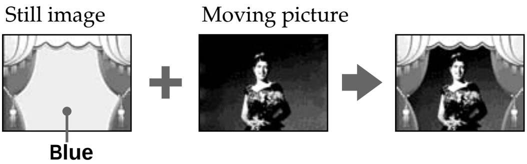
M. LUMI (memory luminance key)
You can swap a brighter area of a still image such as a handwritten illustration or title with a moving picture. Record a title on the “Memory Stick” before a trip or event for convenience.

C. CHROM (camera chroma key)
You can superimpose a moving picture on a still image such as an image can be used as background. Shoot the subject against a blue background. The blue area of the moving picture will be swapped with a still image.

M. OVERLAP* (memory overlap)
You can make a moving picture fade in on top of a still image recorded on the “Memory Stick.”

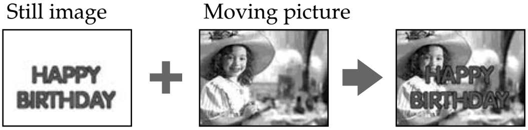
M. CHROM

M←CAM
CHROM


Still image
Moving picture
Blue

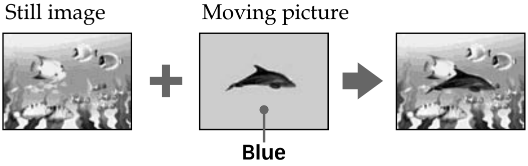
M. LUMI

M←CAM
LUMI


Still image
Moving picture
HAPPY BIRTHDAY
HAPPY BIRTHDAY

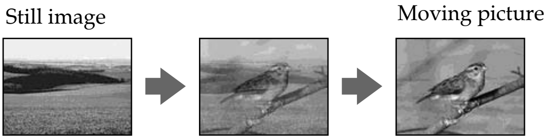
C. CHROM

CAM←M
CHROM


Still image
Moving picture
Blue

M. OVERLAP*

OVER–
LAP


Still image
Moving picture

* The superimposed image using Memory overlap can be recorded on tapes only.

Recording superimposed images on a tape

Before operation

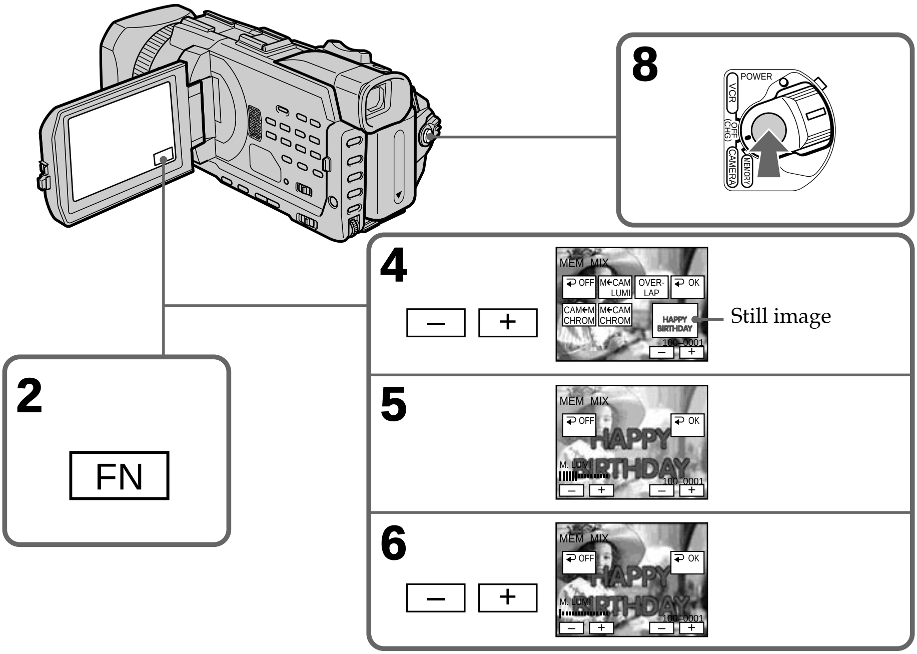
- Insert a tape for recording into your camcorder.
- Insert a "Memory Stick" recorded still images into your camcorder.

(1) Set the POWER switch to CAMERA.
(2) Press FN to display PAGE1.
(3) Press MEM MIX. The last recorded or last composed image appears on the lower part of the screen as a thumbnail image.
(4) Press –/+ on the right lower corner of the screen to select the still image which you want to superimpose.
–: To see the previous image
+: To see the next image
(5) Press a desired mode. The still image is superimposed on the moving picture.
(6) Press –/+ on the left lower corner of the screen to adjust the effect, then press ↩ OK to return to PAGE1.

M. CHROM:	Blue chroma key (only blue background portion) to extract a still image and superimpose it on a moving image
M. LUMI:	Brightness level used when extracting a still image and superimposing it on a moving image
C. CHROM:	Blue chroma key (only blue background portion) to extract a moving picture and superimpose it on a still image
M. OVERLAP:	No adjustment necessary

The fewer bars there are on the screen, the stronger the effect.

(7) Press EXIT to return to FN.
(8) Press START/STOP to start recording.


8
POWER
VCR
OFF (CHG)
CAMERA
MEMORY
4
–
+
MEM MIX
↩ OFF
M←CAM LUMI
OVER-LAP
↩ OK
CAM←M CHROM
M←CAM CHROM
HAPPY BIRTHDAY
100–0001
Still image
5
M. LUMI
6
2
FN

To change the still image to be superimposed

Press –/+ on the right lower corner before step 6.

To cancel MEMORY MIX

Press ↩ OFF to return to PAGE1.

Notes

- You cannot use the MEMORY MIX for moving pictures recorded on a "Memory Stick."
- When the overlapping still image has a large amount of white, the thumbnail image of the picture may not be clear.
- You cannot change the mode setting. Press ↩ OFF to return to PAGE1.

Image data modified on your computer or shot with other equipment

You may not be able to play back modified images with your camcorder.

When you record the still image without superimposing

Select M. LUMI. mode. Press <–/+ mark> until all bars are displayed. Only the still image will be displayed on the screen.

When you select M. OVERLAP

You cannot change the still image or the mode setting.

To record the superimposed image as a still image

Press PHOTO deeper in step 8 (You should set PHOTO REC in 📷 to TAPE in the menu settings beforehand).

Recording superimposed images on a "Memory Stick" as a still image

Before operation
Insert a "Memory Stick" recorded still images into your camcorder.

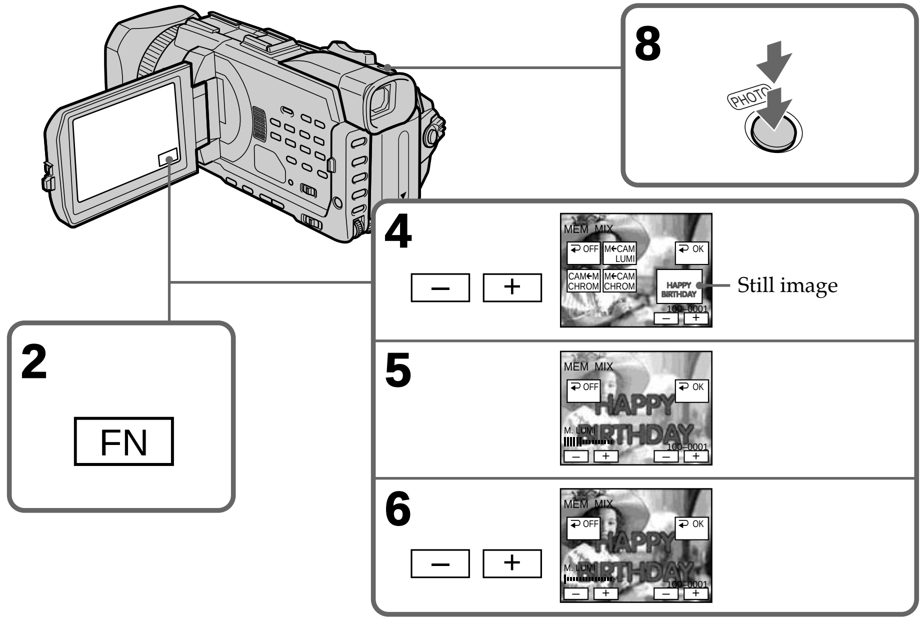
(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press FN and select PAGE2.
(3) Press MEM MIX. The last recorded or last composed image appears on the lower part of the screen as a thumbnail image.
(4) Press –/+ on the right lower corner of the screen to select the still image which you want to superimpose.
–: To see the previous image
+: To see the next image
(5) Press a desired mode. The still image is superimposed on the moving picture.
(6) Press –/+ on the left lower corner of the screen to adjust the effect, then press ↩ OK to return to PAGE2.

M. CHROM:	Blue chroma key (only blue background portion) to extract a still image and superimpose it on a moving image
M. LUMI:	Brightness level used when extracting a still image and superimposing it on a moving image
C. CHROM:	Blue chroma key (only blue background portion) to extract a moving picture and superimpose it on a still image

The fewer bars there are on the screen, the stronger the effect.

(7) Press EXIT to return to FN.
(8) Press PHOTO deeper to start recording.
The image displayed on the screen will be recorded on the "Memory Stick." Recording is complete when the bar scroll indicator disappears.

Superimposing a still image in the “Memory Stick” on an image – MEMORY MIX


8
PHOTO
4
–
+
MEM MIX
OFF
M←CAM LUMI
OK
CAM←M CHROM
M←CAM CHROM
HAPPY BIRTHDAY
100–0001
Still image
2
FN
5
M. LUMI
HAPPY BIRTHDAY
6

To change the still image to be superimposed

Press –/+ on the right lower corner before step 6.

To cancel MEMORY MIX

Press ⮐ OFF to return to PAGE2.

Notes

- You cannot use MEMORY MIX for moving pictures recorded on a “Memory Stick.”
- When the overlapping still image has a large amount of white, the thumbnail image of the picture may not be clear.
- You cannot change the mode setting. Press ⮐ OFF to return to PAGE2.

Image size of still pictures

Image size is automatically set to 640 × 480.

Image data modified with your computers or shot with other equipment

You may not be able to play back modified images with your camcorder.

When recording images on a “Memory Stick” using the MEMORY MIX

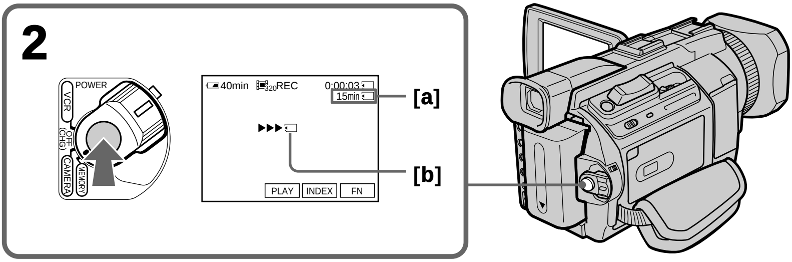
The PROGRAM AE does not work. (The indicator flashes.)

Recording moving pictures on a "Memory Stick" – MPEG movie recording

You can record moving pictures with sound on a "Memory Stick."
You can record picture and sound continuously up to the capacity of a "Memory Stick"(MPEG MOVIE EX).

Before operation
Insert a "Memory Stick" into your camcorder.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press START/STOP. Your camcorder starts recording. The camera recording lamp located on the front of your camcorder lights up. The picture and sound are recorded up to the remaining capacity of the "Memory Stick." For more information about recording time, see page 143.



[a]: Recording time can be recorded on the "Memory Stick".
[b]: This indicator is displayed for five seconds after pressing START/STOP. This indicator is not recorded.

To stop recording

Press START/STOP.

Note

Sound is recorded in monaural.

When the POWER switch is set to MEMORY

The following functions do not work:

- Digital zoom
- Wide mode
- Fader
- Digital effect
- Sports lesson of PROGRAM AE (The indicator flashes.)
- Title

When using an external flash (optional)

Turn the power of the external flash off when recording moving pictures on a "Memory Stick." Otherwise, the charging sound for the flash may be recorded.

Recording date/time

The date/time are not displayed while recording. However, they are automatically recorded onto the "Memory Stick."
To display the recording date/time, press DATA CODE on PAGE2 during playback. You can also use the Remote Commander for this operation (p. 43). Various settings cannot be recorded.

During recording on a "Memory Stick"

Do not eject the cassette tape from your camcorder. During ejecting the tape, sound is recorded on the "Memory Stick."

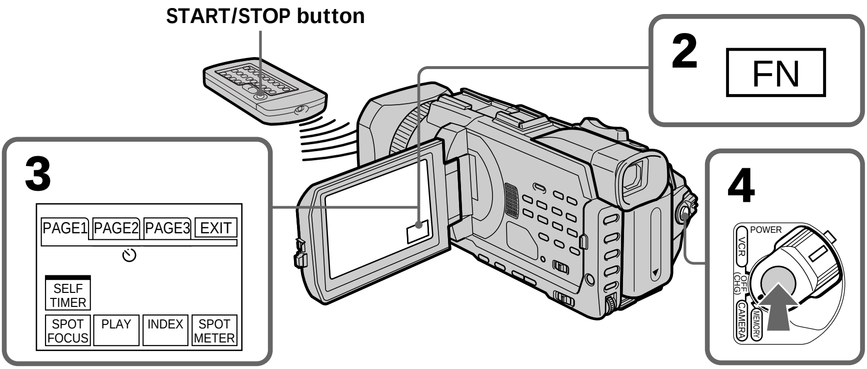
When the POWER switch is set to MEMORY

The angle of view is slightly larger compared with the angle of view when the POWER switch is set to CAMERA.

Self-timer MPEG movie recording

You can record images on a "Memory Stick" with the self-timer. You can also use the Remote Commander for this operation.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press FN to display PAGE1.
(3) Press SELFTIMER.
The ⏲ (self-timer) indicator appears on the screen.
(4) Press START/STOP.
Self-timer starts counting down from 10 with a beep. In the last two seconds of the countdown, the beep gets faster, then recording starts automatically.


START/STOP button
2
FN
3
PAGE1
PAGE2
PAGE3
EXIT
⏲
SELF TIMER
SPOT FOCUS
PLAY
INDEX
SPOT METER
4
POWER
VCR
OFF (CHG)
CAMERA
MEMORY

To stop the self-timer

Press START/STOP. To restart the self-timer, press START/STOP again.

To cancel the self-timer

Press SELFTIMER so that the ⏲ (self-timer) indicator disappears on the screen.

Note

The self-timer is automatically cancelled when:
– Self-timer recording is finished.
– The POWER switch is set to OFF (CHG) or VCR.

Recording pictures from a tape as a moving picture

Your camcorder can read moving picture data recorded on a tape and record it as a moving picture on a “Memory Stick.” Your camcorder can also capture moving picture data through the input connector and record it as a moving picture on a “Memory Stick.”

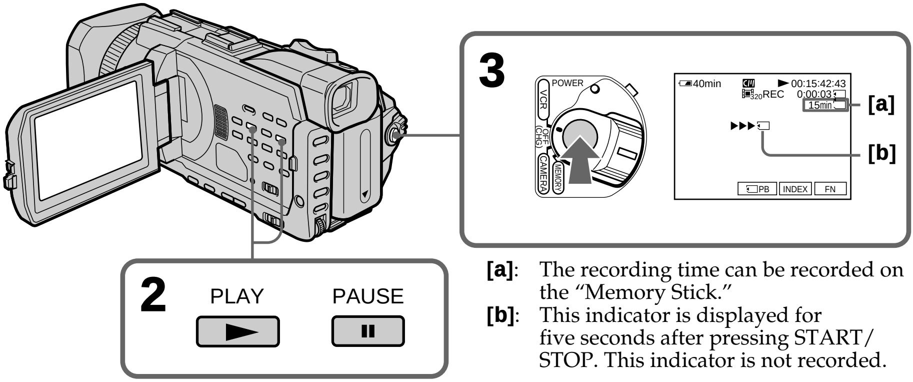
Before operation

Insert a “Memory Stick” and the recorded tape into your camcorder.

(1) Set the POWER switch to VCR.

(2) Press ►. The picture recorded on the tape is played back.
And press ❚❚ at the scene where you want to start recording from.

(3) Press START/STOP on your camcorder. The picture and sound are recorded up to the remaining capacity of the “Memory Stick.” For more information about recording time, see page 143.



[a]: The recording time can be recorded on the “Memory Stick.”

[b]: This indicator is displayed for five seconds after pressing START/STOP. This indicator is not recorded.

To stop recording

Press START/STOP.

Notes

- Sound recorded in 48 kHz is converted to 32 kHz sound when recording images from a tape to a “Memory Stick.”
- Sound recorded in stereo is converted to monaural sound when recording from a tape.

When the access lamp is lit or flashing

Do not shake or knock the unit. Also, do not turn the power off, eject the “Memory Stick.” Otherwise, image data may become damaged.

Titles already recorded on cassettes

You cannot record titles on a “Memory Stick.” Titles do not appear while you are recording moving picture with START/STOP.

If “ AUDIO ERROR” is displayed

Sound that cannot be recorded by your camcorder has been recorded. Connect the A/V connecting cable to input images from external equipment used to play back the image (p. 165).

Recording date/time

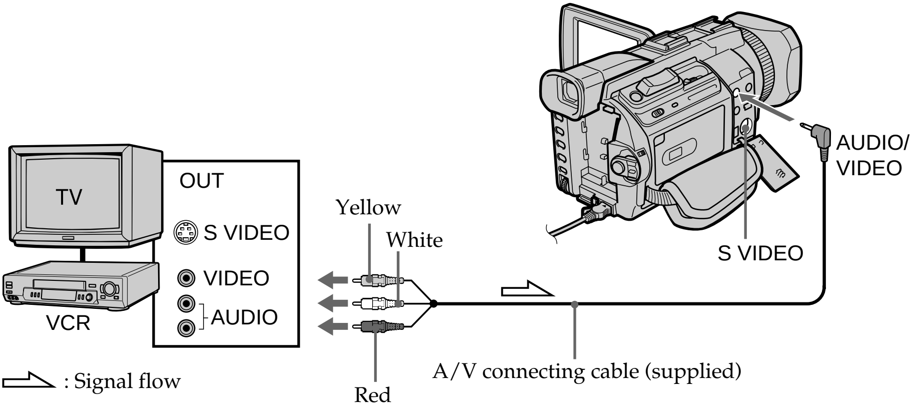
The recording data (date/time) when it is recorded on a “Memory Stick” is recorded. Various settings are not recorded.
Data codes recorded on a tape cannot be recorded on a “Memory Stick.”

Recording a moving picture from external equipment

Before operation
Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

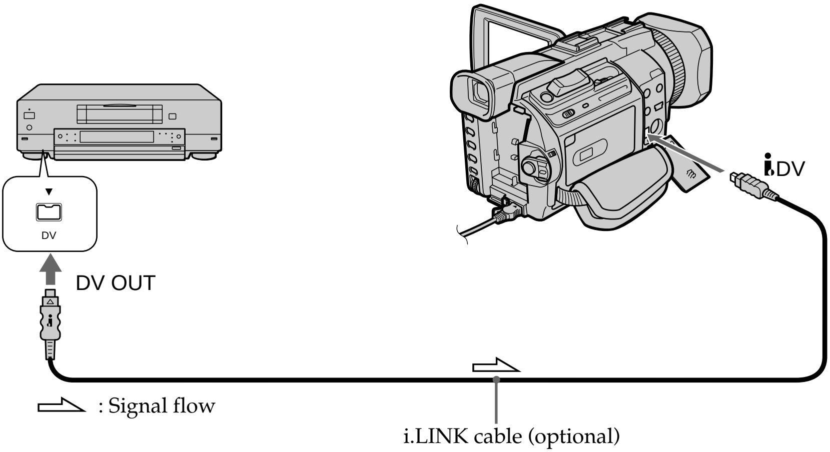
(1) Set the POWER switch to VCR.
(2) Play back the recorded tape, or turn the TV on to see the desired programme. The image of the other equipment is displayed on the screen.
(3) Follow the procedure on page 163 from the step 3 onwards at the point where you want to start recording from.

Using the A/V connecting cable


TV
VCR
OUT
S VIDEO
VIDEO
AUDIO
Yellow
White
Red
AUDIO/
VIDEO
S VIDEO
A/V connecting cable (supplied)
: Signal flow

If your TV or VCR has an S video jack
Pictures can be reproduced more faithfully by using an S video cable (optional).
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (optional) to the S VIDEO jacks of both your camcorder and the TV or VCR.

Using the i.LINK cable



Note

In the following instances, "▭ REC ERROR" is displayed and you cannot record pictures.

– When recording on a tape in a poor recording state, for example, on a tape that has been repeatedly used for dubbing.

– When attempting to input images that are distorted due to poor radio wave reception when a TV tuner unit is in use.

– When the input signal is cut off.

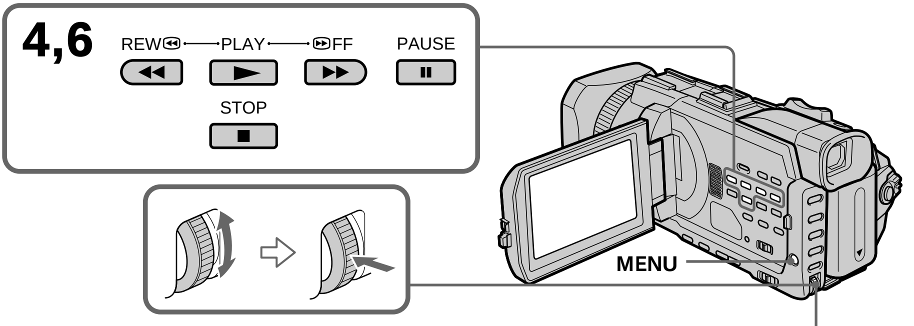
Recording edited pictures from a tape as a moving picture – Digital program editing (on a “Memory Stick”)

You can duplicate selected scenes (programmes) for editing onto a “Memory Stick.”

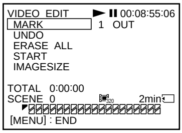
Making the programme

Before operation
Insert a “Memory Stick” and a recorded tape into your camcorder.

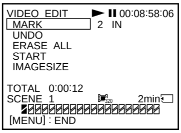
(1) Set the POWER switch to VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to set VIDEO EDIT in ETC to MEMORY, then press the dial (p.223).
(3) Turn the SEL/PUSH EXEC dial to select IMAGESIZE and select the desired image size, then press the dial.
(4) Search for the beginning of the first scene you want to insert using the video operation buttons, then pause playback.
You can fine-adjust one frame at a time with EDITSEARCH.
(5) Press MARK on the Remote Commander, or turn the SEL/PUSH EXEC dial to select MARK, then press the dial.
The IN point of the first programme is set, and the top part of the programme mark changes to light blue.
(6) Search for the end of the first scene you want to insert using the video operation buttons, then pause playback.
You can fine-adjust one frame at a time with EDITSEARCH.
(7) Press MARK on the Remote Commander, or the SEL/PUSH EXEC dial.
The OUT point of the first programme is set, then the bottom part of the programme mark changes to light blue.
(8) Repeat steps 4 to 7, then set the programme.
When one programme is set, the programme mark changes to light blue.
You can set 20 programmes in maximum.



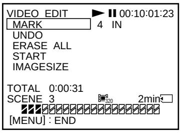
5


VIDEO EDIT ► ❚❚ 00:08:55:06
MARK 1 OUT
UNDO
ERASE ALL
START
IMAGESIZE
TOTAL 0:00:00
SCENE 0 320 2min
[MENU] : END

7


VIDEO EDIT ► ❚❚ 00:08:58:06
MARK 2 IN
UNDO
ERASE ALL
START
IMAGESIZE
TOTAL 0:00:12
SCENE 1 320 2min
[MENU] : END

8


VIDEO EDIT ► ❚❚ 00:10:01:23
MARK 4 IN
UNDO
ERASE ALL
START
IMAGESIZE
TOTAL 0:00:31
SCENE 3 320 2min
[MENU] : END

Erasing the programme you have set

Erase OUT first and then IN of the last programme.

(1) Turn the SEL/PUSH EXEC dial to select UNDO, then press the dial.
(2) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
The last set programme mark flashes, then the setting is cancelled.

To cancel erasing

Select RETURN with the SEL/PUSH EXEC dial in step 2.

Erasing all programmes

(1) Turn the SEL/PUSH EXEC dial to select ERASE ALL, then press the dial.
(2) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
All the programme marks flash, then the settings are cancelled.

To cancel erasing all programmes

Select RETURN with the SEL/PUSH EXEC dial in step 2.

To cancel a programme you have set

Press MENU.
The programme is stored in memory until the tape is ejected.

Notes

- You cannot dub the titles, display indicators, or the contents of cassette memory.
- You cannot operate recording during the digital program editing on a "Memory Stick."

If the tape has a blank portion

You cannot set IN or OUT on the portion

If there is a blank portion between IN and OUT on the tape

The total time may not be displayed correctly.

During making a programme

If you eject the cassette, the programme will be erased.

Performing the programme (Dubbing on a “Memory Stick”)

(1) Turn the SEL/PUSH EXEC dial to select START, then press the dial.
(2) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial.
Search for the beginning of the first programme, then start dubbing.
The programme mark flashes.
The SEARCH indicator appears during search and the EDITING indicator appears during writing of data on your camcorder, and REC appears during dubbing on the screen.
The programme mark changes to light blue after dubbing is complete.
When the dubbing ends, your camcorder automatically stops.

To stop dubbing during editing

Press ■ using the video operation buttons.
The programme you made is recorded on a “Memory Stick” up to the place where you pressed ■.

To end the Digital program editing

Your camcorder stops when the dubbing ends. Then the display returns to VIDEO EDIT in the menu settings.
Press MENU to erase the menu display.

When the programme to operate the Digital program editing has not been made.
You cannot press START.

When the “Memory Stick” does not have enough space to record
“LOW MEMORY ” appears on the screen. However, you can record pictures up to the time indicated.

When the “Memory Stick” has no space to record
“MEMORY FULL” appears on the screen.

When a “Memory Stick” is not set
“NO MEMORY STICK” appears on the screen.

When the write-protect switch on the “Memory Stick” is set to LOCK
“MEMORY STICK LOCKED” appears on the screen.

Copying still images from a tape
– PHOTO SAVE

Using the search function, you can automatically capture only still images from tapes and record them on a “Memory Stick” in sequence.

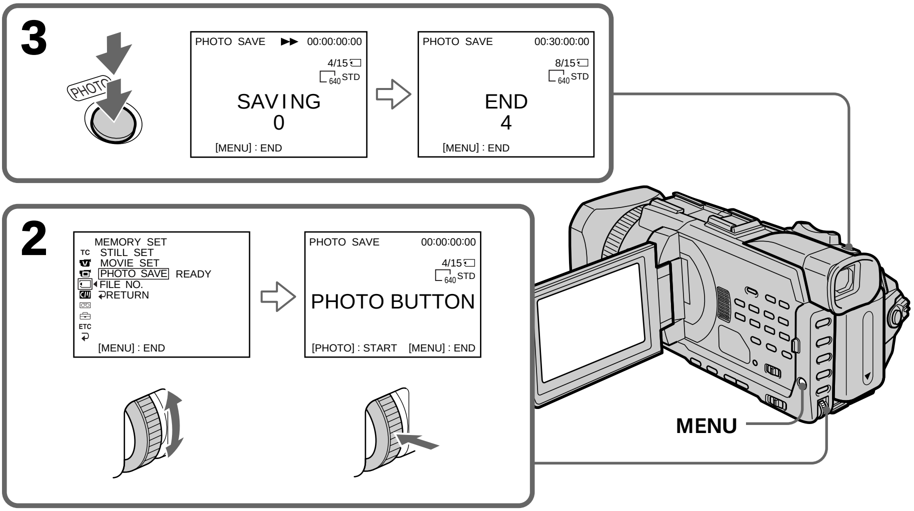
Before operation

- Insert a recorded tape into your camcorder and rewind the tape.
- Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to VCR.

(2) Press MENU, then turn the SEL/PUSH EXEC dial to select PHOTO SAVE in ▭, then press the dial (p. 218).
PHOTO BUTTON appears on the screen.

(3) Press PHOTO deeper. The still image from the tape is recorded on the “Memory Stick.” The number of still images copied is displayed. END is displayed when copying ends.



3
PHOTO
PHOTO SAVE ▶▶ 00:00:00:00
4/15
640 STD
SAVING
0
[MENU] : END
PHOTO SAVE 00:30:00:00
8/15
640 STD
END
4
[MENU] : END
2
MEMORY SET
STILL SET
MOVIE SET
PHOTO SAVE READY
FILE NO.
RETURN
TC
ETC
[MENU] : END
PHOTO SAVE 00:00:00:00
4/15
640 STD
PHOTO BUTTON
[PHOTO] : START [MENU] : END
MENU

To stop copying

Press ■ using the video operation buttons or press MENU.

When the “Memory Stick” becomes full

“MEMORY FULL” appears on the screen, and copying stops. Insert another “Memory Stick” and repeat the procedure from step 2.

Image size of still images
Image size is automatically set to 640 × 480.

When the access lamp is lit or flashing
Do not shake or knock your camcorder. As well do not turn the power off, eject the "Memory Stick." Otherwise, image data may become damaged.

If the write-protect switch on the "Memory Stick" is set to LOCK
"NOT READY" appears when you select the item in the menu settings.

When you change the "Memory Stick" during copying
Your camcorder resumes copying from the last image recorded on the previous "Memory Stick."

Viewing still images – Memory photo playback

You can play back still images recorded on a “Memory Stick.” You can also play back six images including moving pictures in order at a time by selecting the index screen. You can also use the Remote Commander for this operation.

Before operation

Insert a “Memory Stick” into your camcorder.

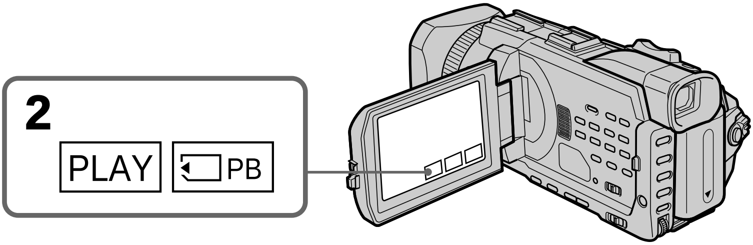
(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).

(2) Press PLAY or ▭ PB. The last recorded image is displayed.

(3) Press −/+ on your camcorder to select the desired still image.

−: To see the previous image

+: To see the next image



To stop memory photo playback

Press CAM, VCR on your camcorder or MEMORY PLAY button on the Remote Commander.

You may not be able to play back images with your camcorder:
– when playing back image data modified on your computer.
– when playing back image data shot with other equipment.

Notes on the file name

- The directory number may not be displayed and only the file name may be displayed if the structure of the directory does not conform to the DCF standard.
- “⊘ ⚿ DIRECTORY ERROR” may appear on screen if the structure of the directory does not conform to the DCF standard. While this message appears, you can play back images but cannot record them on the “Memory Stick.”
- The file name flashes on the screen if the file is corrupted or the file is unreadable.

To play back recorded images on a TV screen

- Before operation, connect your camcorder to the TV with the A/V connecting cable supplied with your camcorder.
- When operating memory photo playback on a TV or on the LCD screen, image quality may appear to have deteriorated. This is not a malfunction. The image data is as good as ever.
- Turn the audio volume of the TV down before operation, or noise (howling) may be output from the TV speakers.

Still images

You can select still images also with –/+ on PAGE1/PAGE2/PAGE3.

When no still image is recorded on the “Memory Stick”

When you press MEMORY PLAY on the Remote Commander, “⊘ NO FILE” appears.

Screen indicators during still image playback

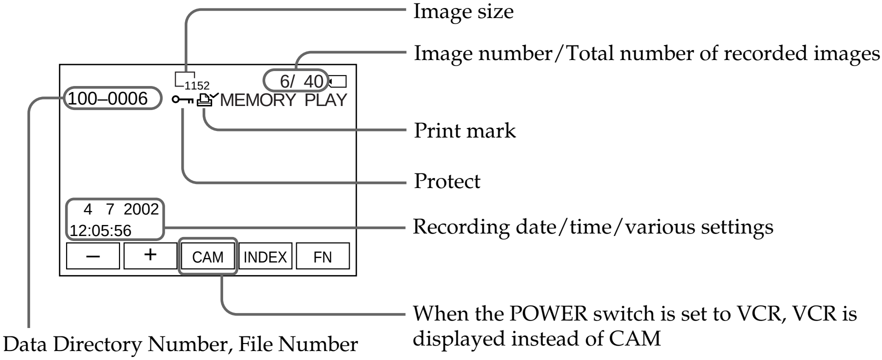


Image size
Image number/Total number of recorded images
1152
6/ 40
100–0006
MEMORY PLAY
Print mark
Protect
4 7 2002
12:05:56
Recording date/time/various settings
–
+
CAM
INDEX
FN
When the POWER switch is set to VCR, VCR is displayed instead of CAM
Data Directory Number, File Number

Recording data

You can view recording data (date/time or various settings when recorded) when you press DATA CODE on PAGE2. You can also use the Remote Commander for this operation (p. 43).

To make screen indicators disappear

Press DISPLAY/TOUCH PANEL.

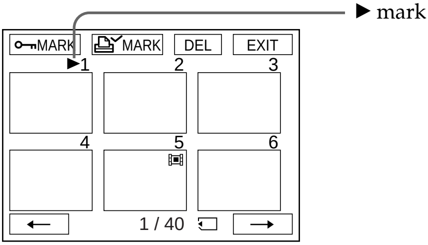
Playing back six recorded images at a time (index screen)

You can play back six recorded images at a time. This function is especially useful when searching for a particular image.

Before operation
Insert a "Memory Stick" into your camcorder.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press INDEX to display the index screen.

A red ▶ mark appears above the image that is displayed before changing to the index screen mode.
← : To display the previous six images
→ : To display the following six images



To return to FN

Press EXIT.

To return to the normal playback screen (single screen)

Press the image you want to display.

Note
When displaying the index screen, the number appears above each image. This indicates the order in which images are recorded on the "Memory Stick." These numbers are different from the data file names.

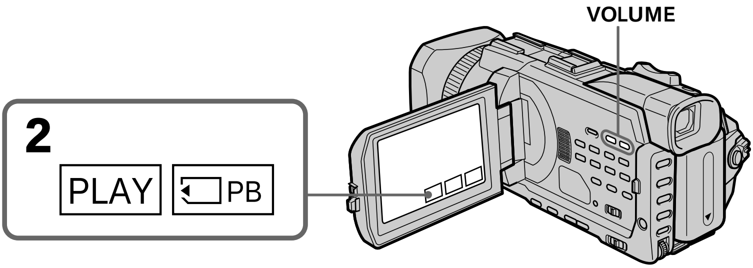
Image data modified on your computer or shot with other equipment
These files are sometimes not displayed on the index screen.

Viewing moving pictures – MPEG movie playback

You can play back moving pictures recorded on a “Memory Stick.” You can also play back six images including still images in order at a time by selecting the index screen.

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press PLAY or ▭ PB. The last recorded image is displayed.
(3) Press +/– to select the desired moving pictures.
– : To see the previous picture
+ : To see the next picture
(4) Press MPEG ► ❚❚ to start playback.
(5) To adjust the volume, press either of the two buttons on VOLUME.
– : To turn down
+ : To turn up
When you close the LCD panel, sound is muted.



To stop MPEG movie playback

Press MPEG ► ❚❚.

Note
You may not be able to play back images with your camcorder:
– When playing back image data modified on your computer.
– When playing back image data shot with other equipment.

To play back recorded images on a TV screen
- Before operation connect your camcorder to the TV with the A/V connecting cable supplied with your camcorder.
- Turn the audio volume of the TV down before operation, or noise (howling) may be output from the TV speakers.

Moving pictures
You can select moving pictures also with –/+ on PAGE1/PAGE2/PAGE3.

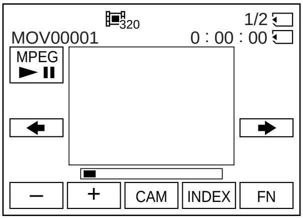
When no image is recorded on the “Memory Stick”
When you press MEMORY PLAY on the Remote Commander, the message “⊠ NO FILE” appears.

Playing back a moving picture from the desired part

The moving picture recorded on a “Memory Stick” is divided into 23 parts.
You can select every each one point and play back pictures.

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press PLAY or ▭ PB. The last recorded image is displayed.
(3) Press –/+ to select the desired moving pictures.
– : To see the previous picture
+ : To see the next picture
(4) Press ⬅/➡ to select the point where you want to play back.
⬅ :To see previous part
➡ :To see next part



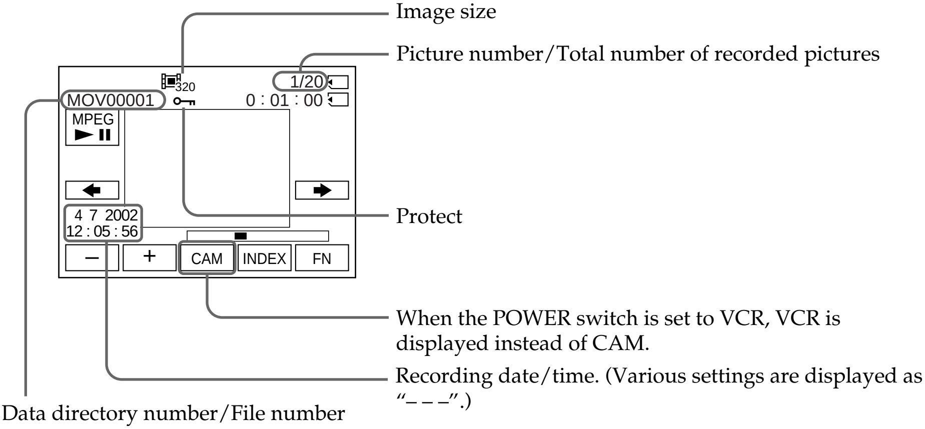
(5) Press MPEG ► II to start playback.

To stop MPEG movie playback

Press MPEG ► II

When recording time is too short
The moving picture may not be divided into 23 parts.

Screen indicators during moving picture playback


MOV00001
320
1/20
0 : 01 : 00
MPEG
4 7 2002
12 : 05 : 56
–
+
CAM
INDEX
FN
Image size
Picture number/Total number of recorded pictures
Protect
When the POWER switch is set to VCR, VCR is displayed instead of CAM.
Recording date/time. (Various settings are displayed as "– – –".)
Data directory number/File number

Recording date/time
To display the recording date/time, press DATA CODE on PAGE2. You can also use the Remote Commander for this operation. (p. 43)

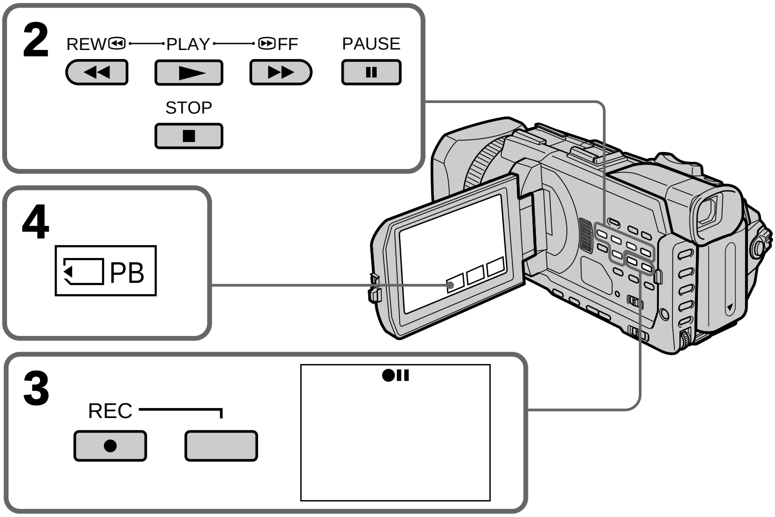
To make screen indicator disappear
Press DISPLAY/TOUCH PANEL.

Copying images recorded on a "Memory Stick" to a tape

You can copy images recorded on a "Memory Stick" and record them to a tape.

Before operation
Insert a "Memory Stick" and a tape for recording into your camcorder.

(1) Set the POWER switch to VCR.
(2) Using the video control buttons, search a point where you want to record the desired images. Set the tape to playback pause.
(3) Press ● REC and the button on its right simultaneously on your camcorder. The tape is set to the recording pause.
(4) Press ▭ PB. The last recorded image is displayed.
(5) Press –/+ to select the desired image.
– : To see the previous image
+ : To see the next image
(6) Press ❚❚ to start recording and press ❚❚ again to stop.
● appears on the screen during recording.
(7) If you have more to copy, repeat steps 5 and 6.



To stop copying in the middle

Press ■.

During copying

You cannot operate the following functions:
– MEMORY PLAY
– MEMORY INDEX
– MEMORY DELETE
– MEMORY +/–

Note on the index screen

You cannot record the index screen.

If you press EDITSEARCH during pause

Memory playback stops.

Image data modified on your computers or shot with other equipment

You may not be able to copy modified images with your camcorder.

When copying movies

After step 6, press MPEG ►II and play back the image.

Enlarging still images recorded on a "Memory Stick" – Memory PB ZOOM

You can enlarge still images recorded on a "Memory Stick." You can select and view a desired part from the enlarged still image. Also, you can copy the desired part of the enlarged still image to tapes or a "Memory Stick".

Before operation

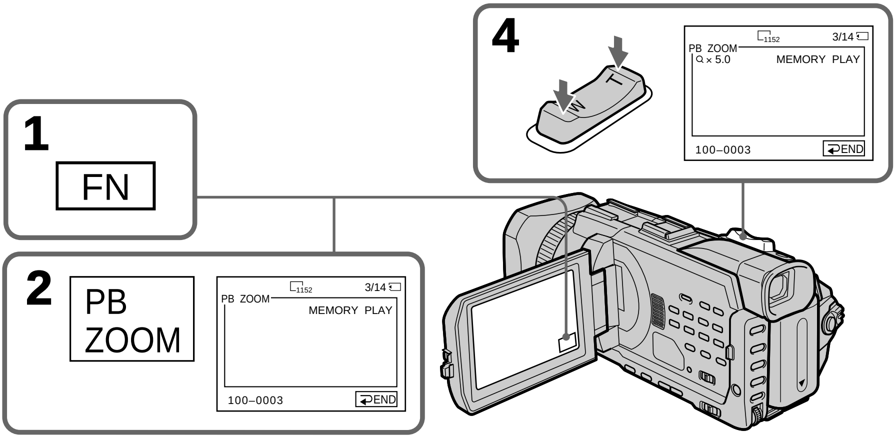
Insert a "Memory Stick" into your camcorder.

(1) Set the POWER switch to MEMORY. Press FN to display PAGE1 during the memory playback. When you set the POWER switch to VCR, press FN and select PAGE2 during the memory playback.

(2) Press PB ZOOM. PB ZOOM screen appears.

(3) Press the area that you want to enlarge in the frame on the PB ZOOM screen. The area you pressed moves to the centre of the screen, and the playback image is enlarged approximately at twice the size. If you press the other area, the area moves to the centre of the screen.

(4) Adjust the zoom ratio by the power zoom lever.
You can enlarge the image from approximately 1.1 times up to five times its size.
W : Decreases the zoom ratio.
T : Increases the zoom ratio.



To cancel PB ZOOM

Press ⮐ END.

The PB ZOOM is cancelled when executing the following operations:

– MENU
– MEMORY PLAY*
– MEMORY INDEX*
– MEMORY +/–*

* When these functions are selected by the Remote Commander.

Moving pictures recorded on a "Memory Stick"

The PB ZOOM does not work.

To record the still image processed by Memory PB ZOOM on a "Memory Stick"

Press PHOTO to record the still image processed by PB ZOOM. (Images are recorded at 640 × 480 size.)

In the PB ZOOM mode

If you press DISPLAY/TOUCH PANEL button, the frame on the PB ZOOM screen disappears. You cannot move the part you pressed to the centre of the screen.

Edge of the enlarged image

The edge of the enlarged image cannot be displayed at the centre of the screen.

To record an image processed on PB ZOOM on tapes

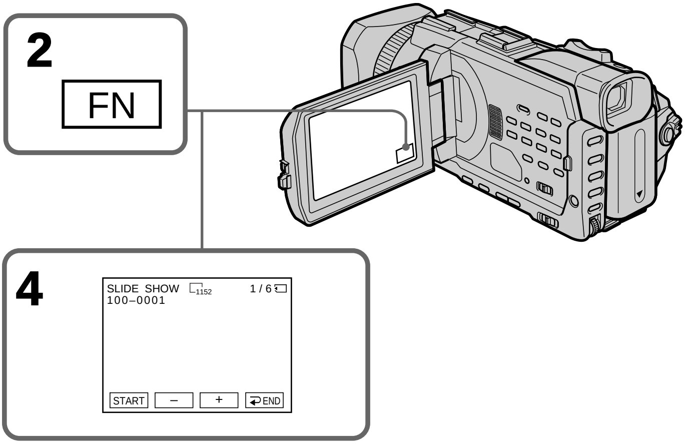
Follow the procedure on page 178 and execute the PB ZOOM after step 5.

Playing back images in a continuous loop – SLIDE SHOW

You can automatically play back images in sequence. This function is useful especially when checking recorded images or during a presentation.

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press FN and select PAGE3.
(3) Press SLIDE SHOW.
(4) Press START. Your camcorder plays back the images recorded on the “Memory Stick” in sequence.



To stop the slide show

Press ↩ END.

To pause during a slide show

Press PAUSE.

To return to FN

Press ↩ END to return to PAGE3, then press EXIT.

To start the slide show from a particular image

Select the desired image using –/+ buttons before step 4.

To view recorded images on TV
Before operation connect your camcorder to a TV with the A/V connecting cable supplied with your camcorder.

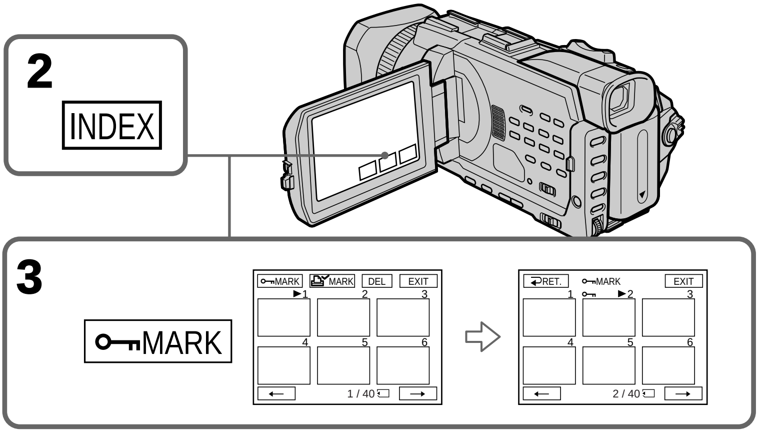
If you change the “Memory Stick” during operation
The slide show does not operate. If you change the “Memory Stick,” be sure to follow the steps again from the beginning.

Preventing accidental erasure – Image protection

You can protect selected images to prevent accidental erasure of important images.

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press INDEX on your camcorder to display the index.
(3) Press ⊶ MARK, then press the image you want to protect. A “⊶” appears on the protected image.



To return to FN

Press EXIT.

To cancel image protection

Press the image you want to cancel image protection in step 3 again. The “⊶” disappears.

Note
Formatting erases all information on the “Memory Stick,” including the protected image data. Before formatting a “Memory Stick,” check its contents.

If the write-protect switch on the “Memory Stick” is set to LOCK
You cannot protect images.

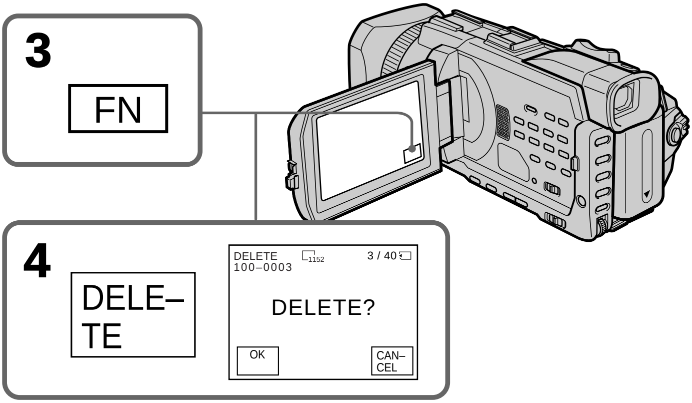
Deleting images – DELETE

You can delete images stored in a “Memory Stick.” You can delete all images or only selected images.

Deleting selected images

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Play back the image you want to delete.
(3) Press FN to display PAGE1.
(4) Press DELETE. “DELETE?” appears on the LCD screen.
(5) Press OK. The selected image is deleted.



To return to FN
Press EXIT.

To cancel deleting an image
Press CANCEL in step 5.

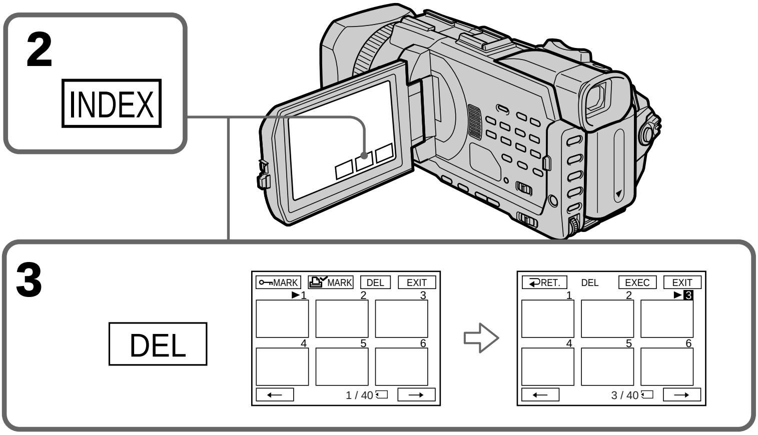
Notes
- To delete a protected image, first cancel image protection.
- Once you delete an image, you cannot restore it. Before deleting an image, carefully check the image.

If the write-protect switch on the “Memory Stick” is set to LOCK
You cannot delete images.

Deleting selected images on the index screen

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press INDEX to display the index screen.
(3) Press DEL. Then press the images you want to delete. The number of the selected image is highlighted.
(4) Press EXEC. “DELETE?” appears on the LCD screen.
(5) Press OK. The selected images are deleted.


2
INDEX
3
DEL
MARK
MARK
DEL
EXIT
▶1
2
3
4
5
6
1 / 40
RET.
DEL
EXEC
EXIT
1
2
▶3
4
5
6
3 / 40

To return to FN

Press EXIT.

To cancel deleting an image

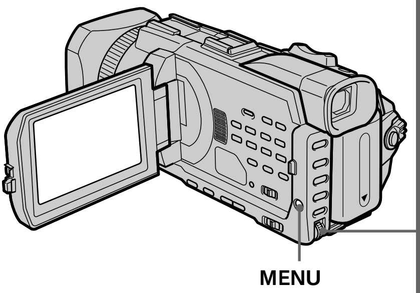
Press CANCEL in step 5.

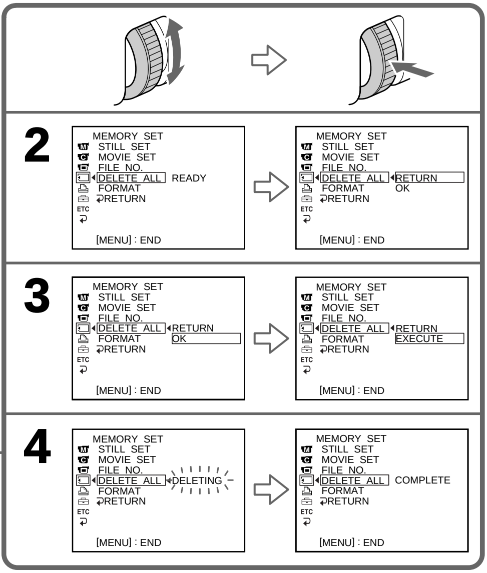
Deleting all images

You can delete all unprotected images in the “Memory Stick.”

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select DELETE ALL in ▭, then press the dial. (p. 218)
(3) Turn the SEL/PUSH EXEC dial to select OK, then press the dial. OK changes to EXECUTE.
(4) Turn the SEL/PUSH EXEC dial to select EXECUTE, then press the dial. DELETING flashes on the screen. When all unprotected images are deleted, COMPLETE is displayed.




2
MEMORY SET
STILL SET
MOVIE SET
FILE NO.
DELETE ALL READY
FORMAT
RETURN
ETC
[MENU] : END
MEMORY SET
STILL SET
MOVIE SET
FILE NO.
DELETE ALL RETURN
FORMAT OK
RETURN
ETC
[MENU] : END
3
MEMORY SET
STILL SET
MOVIE SET
FILE NO.
DELETE ALL RETURN
FORMAT OK
RETURN
ETC
[MENU] : END
MEMORY SET
STILL SET
MOVIE SET
FILE NO.
DELETE ALL RETURN
FORMAT EXECUTE
RETURN
ETC
[MENU] : END
4
MEMORY SET
STILL SET
MOVIE SET
FILE NO.
DELETE ALL DELETING
FORMAT
RETURN
ETC
[MENU] : END
MEMORY SET
STILL SET
MOVIE SET
FILE NO.
DELETE ALL COMPLETE
FORMAT
RETURN
ETC
[MENU] : END

To cancel deleting all the images in the “Memory Stick”

Select RETURN with the SEL/PUSH EXEC dial in step 3 or 4.

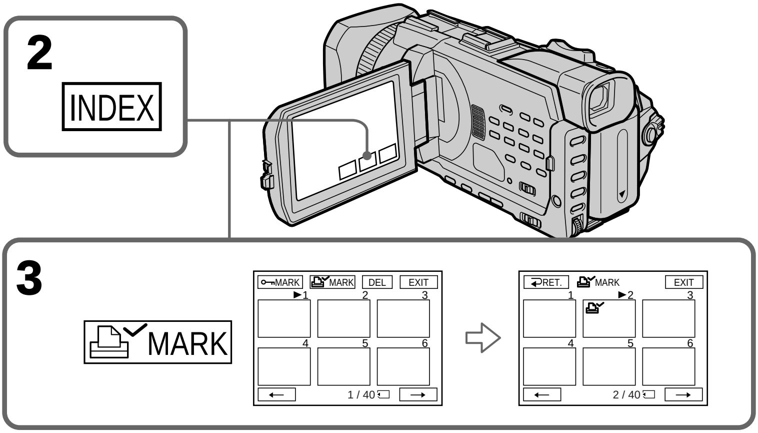
While DELETING appears
Do not turn the POWER switch or press any buttons.

Writing a print mark – PRINT MARK

You can specify a recorded still image to print out by writing a print mark. This function is useful for printing out still images later.
Your camcorder conforms to the DPOF (Digital Print Order Format) standard for specifying still images to print out.

Before operation
Insert a “Memory Stick” into your camcorder.

(1) Set the POWER switch to MEMORY or VCR. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press INDEX to display the index screen.
(3) Press 🖨✓ MARK, then press the image for which you want to write a print mark. A “🖨✓” appears on the selected image.



To return to FN

Press EXIT.

To cancel writing print marks

Press the image for which you want to cancel the print mark set in step 3 again. The 🖨✓ disappears.

If the write-protect switch on the “Memory Stick” is set to LOCK
You cannot write print marks on still images.

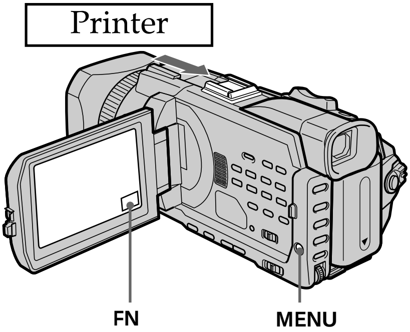
Moving pictures
You cannot write print marks on moving pictures.

Using the optional printer

You can use the optional printer on your camcorder to print images on print paper. For details, refer to the operating instructions of the printer.
There are various ways of printing still images. The following describes the setup for printing with the DATE/DAY & TIME information superimposed and the print setup required to select 9PIC PRINT.

Before operation

- Insert a recorded “Memory Stick” into your camcorder.
- Attach the optional printer to your camcorder as illustrated.



Inserting DATE/DAY & TIME

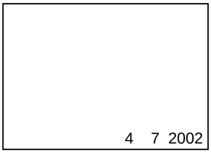
You can print the recorded DATE/DAY & TIME data on the print paper.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).

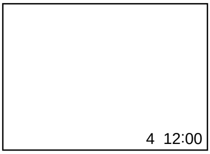
(2) Press MENU, then turn the SEL/PUSH EXEC dial to select DATE/TIME in ⎙, then press the dial. (p. 219)

(3) Turn the SEL/PUSH EXEC dial to select the desired mode.

DATE



DAY & TIME

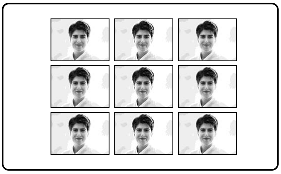


Selecting 9PIC PRINT

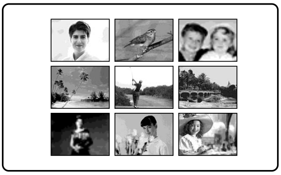
You can make 9 stickers on a single sheet when you print images recorded on a "Memory Stick" in 9PIC PRINT.

(1) Set the POWER switch to MEMORY. Make sure that the LOCK switch is set to the further side (unlock position).
(2) Press FN and select PAGE3.
(3) Press 9PIC PRINT.
(4) Press the desired mode.

SAME PICS



MULTI PICS or MARKED PICS*



* Nine still images with print marks are printed together.

Moving pictures recorded on a "Memory Stick"
You cannot print moving pictures. When there are no files other than moving pictures, "NO STILL IMAGE FILE" appears on the screen.

When the "Memory Stick" has no files
"NO FILE" appears on the screen.

When there are no files with a PRINT MARK
"NO PRINT MARK" appears on the screen.

Images processed by 9PIC PRINT
You cannot insert a DATE/TIME indicator.

Images recorded in the MULTI SCRN
You can print images recorded in the multi screen mode on sticker type print paper. However, each frame cannot be properly adjusted to the frames on the print paper.

Viewing images on your computer – Introduction

There are the following ways of connecting the camcorder to a computer in order to view images saved on the "Memory Stick" or recorded on the tape on your computer.

To view images on a computer which has a "Memory Stick" slot, first remove the "Memory Stick" from the camcorder and then insert it into the computer's "Memory Stick" slot.

	Camcorder Connection jack	Connection cable	Computer environment requirements
Tape stills and movies	USB jack	USB cable (supplied)	USB connector, editing software
	i.LINK (DV Interface)	i.LINK cable (optional)	DV connector, editing software
"Memory Stick" stills and movies	USB jack	USB cable (supplied)	USB connector, editing software

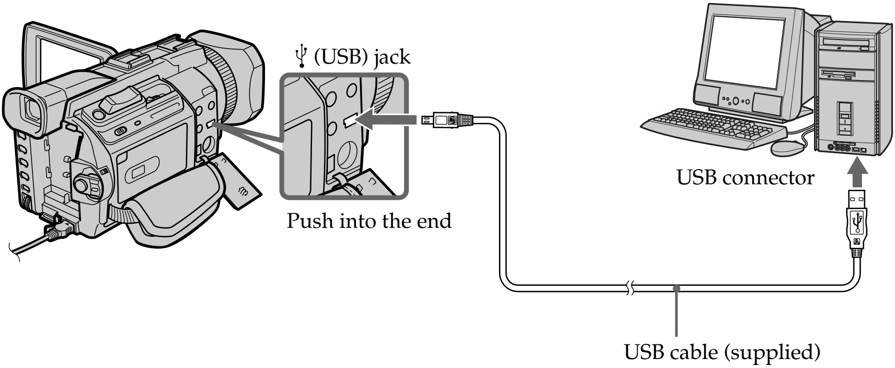
When connecting to a computer via the USB jack, complete installation of the USB driver before connecting the camcorder to the computer. If you connect the camcorder to the computer first, you will not be able to install the USB driver correctly.

For details about your computer's connectors and editing software, contact the computer manufacturer.

Viewing images recorded on a tape

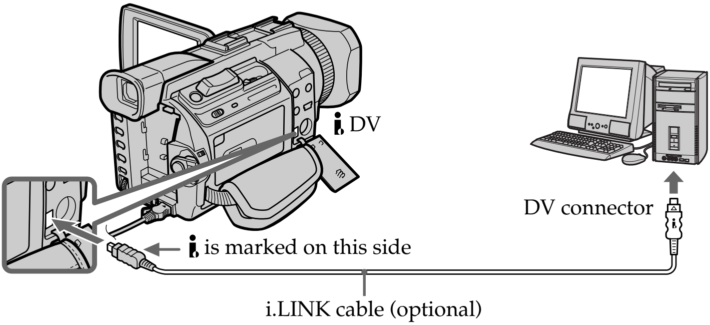
When connecting to a computer using the USB jack

For more information, see page 193.



When connecting to a computer using the i.LINK (DV interface)

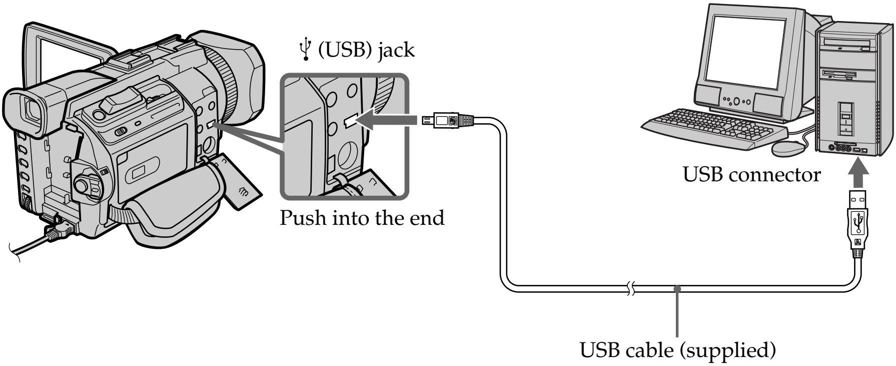
Your computer must have a DV connector and editing software installed that can read video signals.


DV
DV connector
is marked on this side
i.LINK cable (optional)

Viewing images recorded on a "Memory Stick"

When connecting to a computer using the USB jack

There are two methods of USB connection, NORMAL and PTP. The default setting is NORMAL. Here we explain how to use the camcorder with a standard USB connection (NORMAL).
See page 193 when using Windows and page 208 when using Macintosh.


(USB) jack
Push into the end
USB connector
USB cable (supplied)

You can also use a Memory Stick Reader/Writer (optional).

When connecting to a computer without a USB jack

Use an optional floppy disk adaptor for a Memory Stick or a PC card adaptor for a Memory Stick.
When purchasing an accessory, check its catalog beforehand for the recommended operating environment.

Notes on using your computer

"Memory Stick"

- "Memory Stick" operations on your camcorder cannot be assured if a "Memory Stick" formatted on your computer is used on your camcorder, or if the "Memory Stick" in your camcorder was formatted from your computer when the USB cable was connected.
- Do not compress the data on the "Memory Stick." Compressed files cannot be played back on your camcorder.

Software

- Depending on your application software, the file size may increase when you open a still image file.
- When you load an image modified using retouching software from your computer to your camcorder or when you directly modify the image on your camcorder, the image format will differ so a file error indicator may appear and you may be unable to open the file.

Communications with your computer

Communications between your camcorder and your computer may not recover after recovering from Suspend, Resume, or Sleep.

Connecting your camcorder to your computer using the USB cable – For Windows users

Complete installation of the USB driver before connecting the camcorder to the computer. If you connect the camcorder to the computer first, you will not be able to install the USB driver correctly.

When connecting to a computer using the USB cable

You must **install a USB driver** onto your computer in order to connect the camcorder to the computer's USB connector. The USB driver can be found on the CD-ROM supplied, along with the application software required for viewing images.
If you connect your camcorder and your computer using the USB cable, you can view pictures live from your camcorder and pictures recorded on a tape on your computer (USB Streaming function).
Furthermore, if you download pictures from your camcorder to your computer, you can process or edit them in image processing software and append them to e-mail.
You can view images recorded on the "Memory Stick" on your computer.

Recommended computer usage environment when connecting via USB cable and viewing tape images on the computer

OS:
Microsoft Windows 98SE, Windows Me, Windows 2000 Professional, Windows XP Home Edition or Windows XP Professional
Standard installation is required.
However, operation is not assured if the above environment is an upgraded OS.
You cannot hear sound if your computer is running Windows 98, but you can read still images.
CPU:
Pentium III 500 MHz or faster (800 MHz or faster recommended)
Application:
DirectX 8.0a or later
Sound system:
16 bit stereo sound card and speakers
Memory:
64 MB or more
Hard disk:
Available memory required for installation:
at least 200MB
Available hard disc memory recommended:
at least 1GB (depending on the size of the image files edited)
Display:
4 MB VRAM video card, Minimum 800 × 600 dot High colour (16 bit colour, 65,000 colours), Direct Draw display driver capability (At 800 × 600 dot or less, 256 colours and less, this product will not operate correctly.)
Others:
This product is compatible with DirectX technology, so it is necessary to install DirectX.

The USB connector must be provided as standard.

You cannot use this function in the Macintosh environment.

Recommended computer usage environment when connecting via USB cable and viewing "Memory Stick" images on the computer

OS:
Microsoft Windows 98, Windows 98SE, Windows Me, Windows 2000 Professional, Windows XP Home Edition or Windows XP Professional
Standard installation is required.
However, operation is not assured if the above environment is an upgraded OS.
CPU:
MMX Pentium 200 MHz or faster

The USB connector must be provided as standard.

Windows Media Player must be installed (to play back moving pictures).

Notes
- Operations are not guaranteed for the Windows environment if you connect two or more USB equipment to a single computer at the same time, or when using a hub.
- Some equipment may not operate depending on the type of USB equipment that is used simultaneously.
- Operations are not guaranteed for all the recommended computer environments mentioned above.
- Windows and Windows Media are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.
- Pentium is trademark or registered trademark of Intel Corporation.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

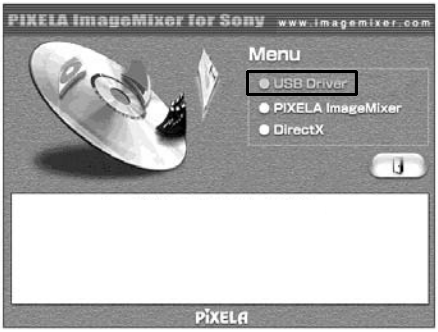
Connecting your camcorder to your computer using the USB cable – For Windows users

Installing the USB driver

Start the following operation without connecting the USB cable to your computer.
Connect the USB cable according to "Making the computer recognise the camcorder."

If you are using Windows 2000 Professional or Windows XP Home Edition/ Professional, log in with permission of Administrators.

(1) Turn on your computer and allow Windows to load.
(2) Insert the supplied CD-ROM into the CD-ROM drive of your computer. The application software starts up and the title screen appears.
(3) Move the cursor to "USB Driver" and click. This starts USB driver installation.



(4) Follow the on-screen messages to install the USB driver.
(5) Remove the CD-ROM and then restart the computer, in accordance with the instructions on the screen.

Note
If you connect the USB cable before USB driver installation is complete, the USB driver will not be properly registered. Carry out installation again in accordance with the steps on page 198.

Windows XP Home Edition/Professional users
If you go to "USBCONNECT" in the menu settings and select "PTP," you can copy "Memory Stick" images from the camcorder onto your computer without installing the USB driver. This is ideal for simply copying images from a camcorder onto a computer. Refer to page 221 for details.

Making the computer recognise the camcorder

Make sure that the USB driver has been installed.

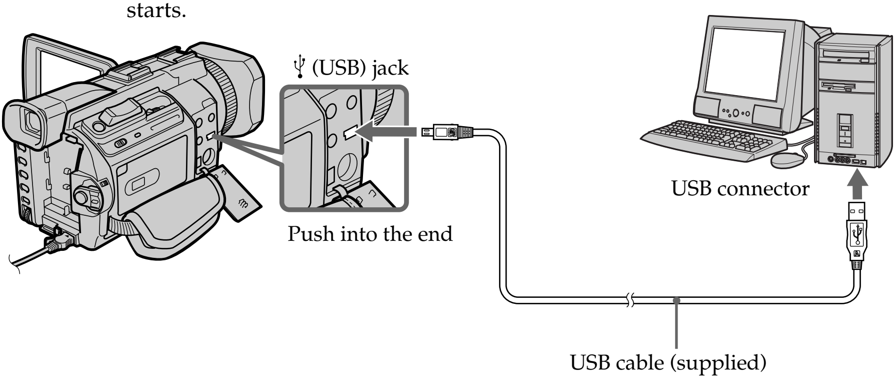
Viewing images recorded on a tape

Refer to page 197 for details on viewing “Memory Stick” images on your computer.

You need to install “PIXELA ImageMixer ” to view images recorded on a tape on your computer. Install it from the CD-ROM supplied with your camcorder.

To install and use this software in Windows 2000 Professional. You must be authorised as Power Users or Administrators. For Windows XP Home Edition/Professional, you must be authorised as Administrators.

(1) Turn on your computer and allow Windows to load.
If you are using your computer, close all running applications.
(2) Insert the supplied CD-ROM into the CD-ROM drive of your computer.
The application software starts up and the title screen appears. If the title screen does not appear, double-click “My Computer” and then “ImageMixer” (CD-ROM Drive). The application software screen appears after a while.
(3) Move the cursor to “PIXELA ImageMixer” and click.
The Install Wizard programme starts up and the “Select Settings Language” screen appears.
(4) Select the language for installation.
(5) Follow the on-screen messages.
The installation screen disappears when installation is complete.
(6) Click DirectX
Follow the on-screen messages to install DirectX.
Restart your computer when the installation is completed.
(7) Connect the AC power adaptor to your camcorder.
(8) Set the POWER switch to VCR.
(9) Select USB STREAM in ▣ to ON in the menu settings. (p. 221)
(10) With the CD-ROM inserted, connect the USB jacks of the camcorder and computer using the USB cable supplied with your camcorder.
Your computer recognises the camcorder, and the Add Hardware Wizard starts.



(11) Follow the on-screen messages so that the Add Hardware Wizard recognises that the USB drivers have been installed. The Add Hardware Wizard starts three times because three different USB drivers are installed. Be sure to allow the installation to complete without interrupting it.

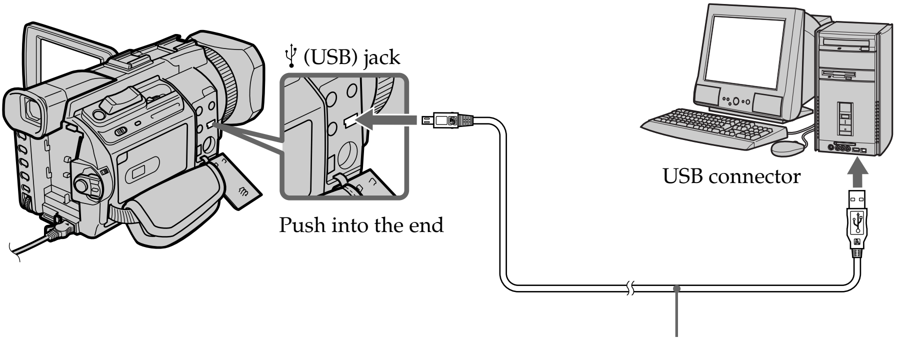
For Windows 2000 Professional, Windows XP Home Edition/Professional users

(12) After the “File Needed” screen appears.
Open “Browse...” → “My Computer” → “ImageMixer” → “Sonyhcb.sys”, and click “OK.”

Viewing images recorded on a “Memory Stick”

Set USBCONNECT in ⊟ to NORMAL in the menu settings. (The default setting is set to NORMAL.)

(1) Insert a “Memory Stick” into your camcorder.
(2) Connect the AC power adaptor and set the POWER switch to MEMORY.
(3) Connect the ψ (USB) jack on your camcorder to the USB connector on your computer using the supplied USB cable.
USB MODE appears on the LCD screen of your camcorder. Your computer recognises the camcorder, and the Add Hardware Wizard starts.



(4) Follow the on-screen messages to make the Add Hardware Wizard recognise that the USB drivers have been installed. The Add Hardware Wizard starts two times because two different USB drivers are installed. Be sure to allow each installation to complete without interrupting it.

You cannot install the USB driver if a “Memory Stick” is not in your camcorder.
Be sure to insert a “Memory Stick” into your camcorder before installing the USB driver.

If you cannot install the USB driver

The USB driver has been registered incorrectly as your computer was connected to your camcorder before installation of the USB driver was completed. Perform the following procedure to correctly install the USB driver.

Viewing images recorded on a tape

Step 1: Uninstall the incorrect USB driver

① Turn on your computer and allow Windows to load.

② Connect the AC power adaptor, and set the POWER switch to VCR.

③ Connect the USB connector on your computer to the ψ (USB) jack on your camcorder using the USB cable supplied with your camcorder.

④ Open your computer's "Device Manager."

Windows XP Home Edition/Professional:

Select "Start" → "Control Panel" → "System" → "Hardware," and click the "Device manager" button.

If there is no "System" inside "Pick a category" after clicking "Control Panel," click "Switch to classic view" instead.

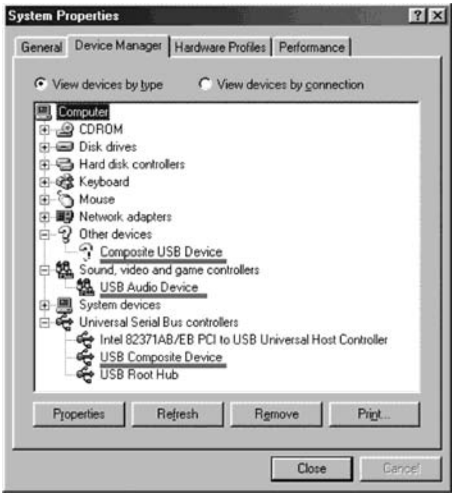
Windows 2000 Professional:

Select "My Computer" → "Control Panel" → "System" → "Hardware" tab, and click the "Device Manager" button.

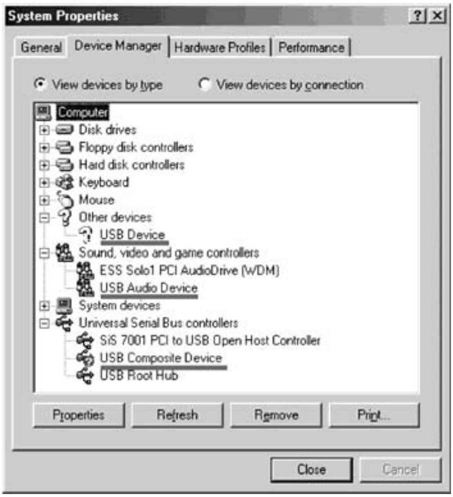
Windows 98 SE/Windows Me:

Select "My Computer" → "Control Panel" → "System," and click "Device Manager."

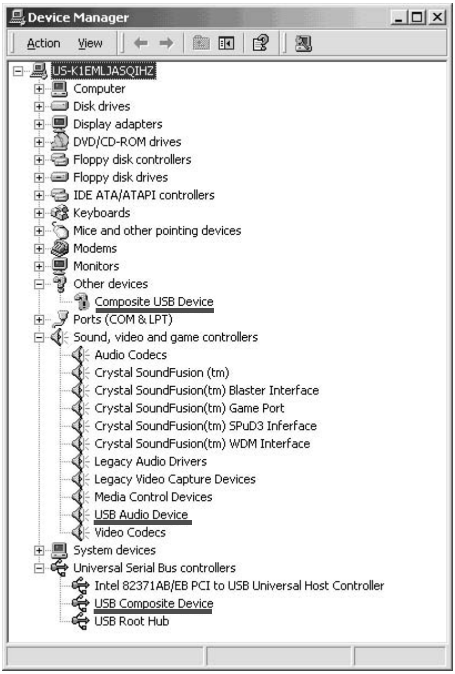
⑤ Select and delete the underlined devices below.


System Properties
General
Device Manager
Hardware Profiles
Performance
View devices by type
View devices by connection
Computer
CDROM
Disk drives
Hard disk controllers
Keyboard
Mouse
Network adapters
Other devices
Composite USB Device
Sound, video and game controllers
USB Audio Device
System devices
Universal Serial Bus controllers
Intel 82371AB/EB PCI to USB Universal Host Controller
USB Composite Device
USB Root Hub
Properties
Refresh
Remove
Print...
Close
Cancel

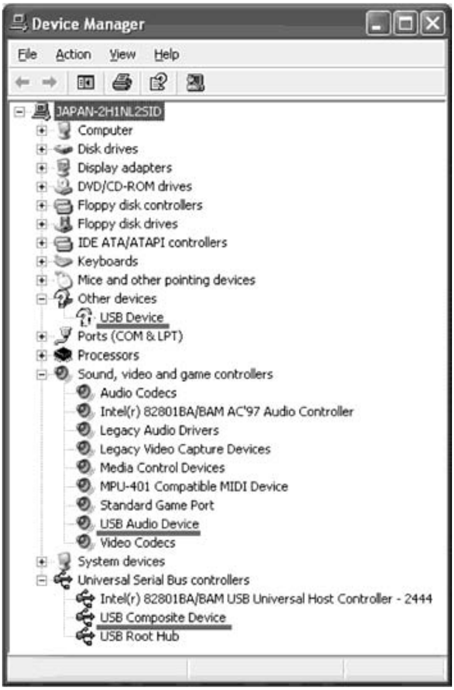
Windows 98SE


System Properties
General
Device Manager
Hardware Profiles
Performance
View devices by type
View devices by connection
Computer
Disk drives
Floppy disk controllers
Hard disk controllers
Keyboard
Mouse
Other devices
USB Device
Sound, video and game controllers
ESS Solo1 PCI AudioDrive (WDM)
USB Audio Device
System devices
Universal Serial Bus controllers
SiS 7001 PCI to USB Open Host Controller
USB Composite Device
USB Root Hub
Properties
Refresh
Remove
Print...
Close
Cancel

Windows Me


Device Manager
Action View
US-K1EMLJASQIHZ
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Modems
Monitors
Other devices
Composite USB Device
Ports (COM & LPT)
Sound, video and game controllers
Audio Codecs
Crystal SoundFusion (tm)
Crystal SoundFusion(tm) Blaster Interface
Crystal SoundFusion(tm) Game Port
Crystal SoundFusion(tm) SPuD3 Inferface
Crystal SoundFusion(tm) WDM Interface
Legacy Audio Drivers
Legacy Video Capture Devices
Media Control Devices
USB Audio Device
Video Codecs
System devices
Universal Serial Bus controllers
Intel 82371AB/EB PCI to USB Universal Host Controller
USB Composite Device
USB Root Hub

Windows 2000 Professional


Device Manager
File Action View Help
JAPAN-2H1NL2SID
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Other devices
USB Device
Ports (COM & LPT)
Processors
Sound, video and game controllers
Audio Codecs
Intel(r) 82801BA/BAM AC'97 Audio Controller
Legacy Audio Drivers
Legacy Video Capture Devices
Media Control Devices
MPU-401 Compatible MIDI Device
Standard Game Port
USB Audio Device
Video Codecs
System devices
Universal Serial Bus controllers
Intel(r) 82801BA/BAM USB Universal Host Controller - 2444
USB Composite Device
USB Root Hub

Windows XP Home Edition/Professional

⑥ Turn the POWER switch to OFF (CHG) on your camcorder, and then disconnect the USB cable.
⑦ Restart your computer.

Step 2: Install the USB driver on the supplied CD-ROM
Perform the entire procedure described in “Installing the USB driver” on page 195.

Viewing images recorded on a “Memory Stick”

Step1: Uninstall the incorrect USB driver

① Turn on your computer and allow Windows to load.
② Insert a “Memory Stick” into your camcorder.
③ Connect the AC power adaptor, and set the POWER switch to MEMORY.
④ Connect the USB connector on your computer to the ψ (USB) jack on your camcorder using the USB cable supplied with your camcorder.
⑤ Open your computer’s “Device Manager.”

Windows 2000 Professional:

Select “My Computer” → “Control Panel” → “System” → “Hardware,” and click the “Device Manager” button.

Other OS:

Select “My Computer” → “Control Panel” → “System,” and click “Device Manager.”

⑥ Select “Other devices.”
Select the device prefixed with the “?” mark and delete.
Ex: (?)Sony Handycam
⑦ Turn the POWER switch to OFF (CHG) on your camcorder, and then disconnect the USB cable.
⑧ Restart your computer.

Step2: Install the USB driver on the supplied CD-ROM

Perform the entire procedure described in “Installing the USB driver” on page 195.

Viewing images recorded on a tape on your computer – For Windows users

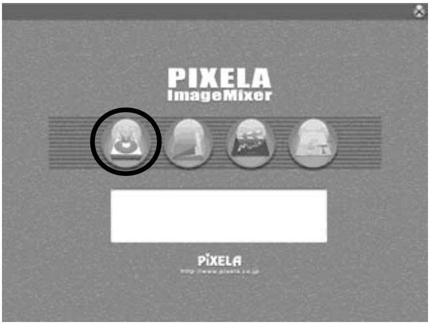
Capturing images with “PIXELA ImageMixer Ver.1.0 for Sony”

You need to install the USB driver and “PIXELA ImageMixer” to view taped images on your computer (p. 195).

To install and use the software in Windows 2000 Professional, you must be authorised as Power Users or Administrators. For Windows XP Home Edition/Professional, you must be authorised as Administrators.

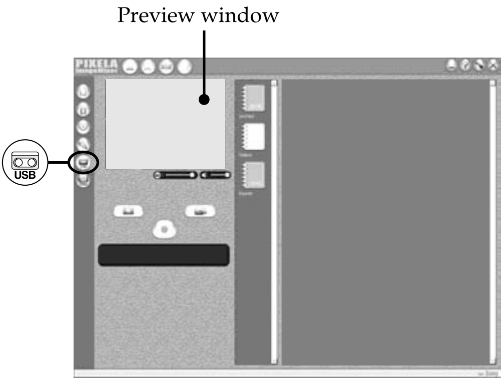
Viewing images recorded on a tape

(1) Turn on your computer and allow Windows to load.
(2) Connect the AC power adaptor, and insert a tape into your camcorder.
(3) Set the POWER switch to VCR.
Select USB STREAM in 🧰 to ON in the menu settings. (p. 221)
(4) Select “Start” → “Programs” → “PIXELA” → “ImageMixer” → “PIXELA ImageMixer Ver.1.0 for Sony.”
The “PIXELA ImageMixer Ver.1.0 for Sony” startup screen appears on your computer. The title screen appears.
(5) Click ◎ on the screen.

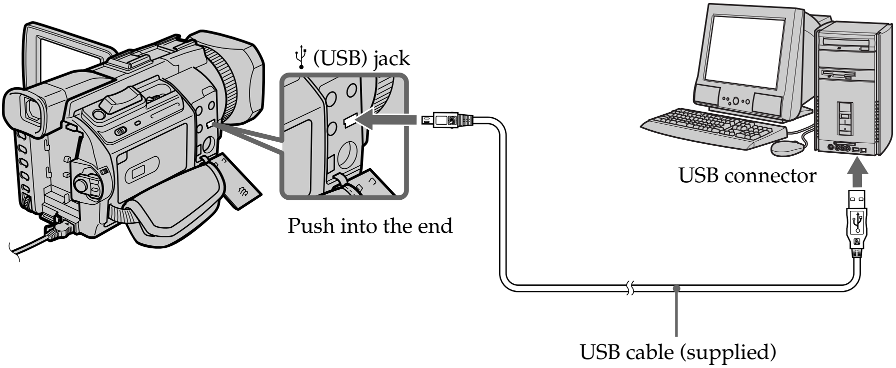


(continued on the following page)

(6) Select USB.


Preview window
USB
PIXELA

(7) Connect the Ψ (USB) jack on your camcorder to the USB connector on your computer using the supplied USB cable.


Ψ (USB) jack
Push into the end
USB connector
USB cable (supplied)

(8) Press ► to start playback.
The picture from the tape appears on your computer.

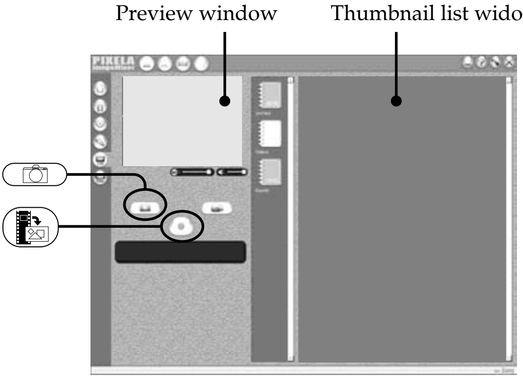
Viewing pictures live from your camcorder

(1) Follow the steps 1, 2 on page 201.

(2) Set the POWER switch to CAMERA.
Select USB STREAM in 🧰 to ON in the menu settings. (p. 221)

(3) Follow the steps 4 to 7 on page 201, 202.
The picture from your camcorder appears on the preview window on your computer.

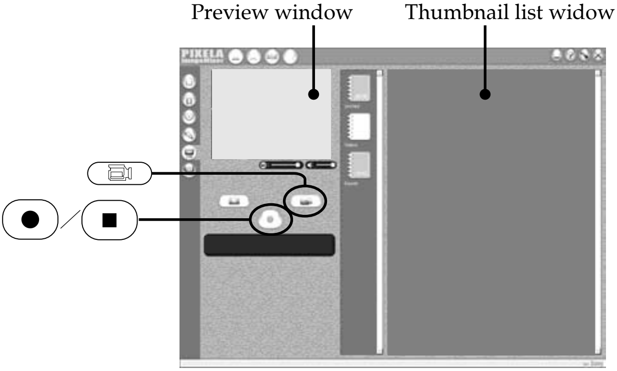
Capturing still images



(1) Select (📷) .

(2) Looking at the preview window, move the cursor to (🎞) and press it at the point you want to capture.
The still image on the screen is captured.
Captured images are displayed in the thumbnail list window.

Capturing moving pictures



(1) Select 🎥 .

(2) Look at the preview window and click on ● at the first scene of the movie you want to capture. ● changes to ■ .

(3) Look at the preview window and click on ■ at the last scene you want to capture. The captured images appear in the thumbnail list window.

Notes

- The following may occur while using your camcorder, and are not due to any malfunction.
  - – The image shakes up and down.
  - – Some images are not displayed correctly due to noise, etc.
  - – Images of different colour systems to that of the camcorder are not displayed correctly.
- When your camcorder is in the standby mode with a cassette inserted, it turns off automatically after five minutes.
- Indicators in the camcorder LCD screen do not appear on images that are captured into your computer.

If image data cannot be transferred by the USB connection

The USB driver has been registered incorrectly as your computer was connected to your camcorder before installation of the USB driver was completed. Reinstall the USB driver following the procedure on page 198.

If any trouble occurs

Close all running applications, then restart your computer.

Carry out the following operations after quitting the application:

- Disconnect the USB cable.
- Change the POWER switch to the other position or set the POWER switch to OFF (CHG) on your camcorder.

Seeing the on-line help (operating instructions) of "PIXELA ImageMixer Ver.1.0 for Sony"

A "PIXELA ImageMixer Ver.1.0 for Sony" on-line help site is available where you can find the detailed operating method of "PIXELA ImageMixer Ver.1.0 for Sony."

(1) Click ? located in the upper-right corner of the screen.
The ImageMixer's Manual screen appears.

(2) You can find the information you need from the list of contents.

To close on-line help

Click ☒ at the top right of the screen.

If you have any questions about "PIXELA ImageMixer Ver.1.0 for Sony"

"PIXELA ImageMixer Ver.1.0 for Sony" is a software product produced by PIXELA corporation. For more information, refer to the instruction manual of the CD-ROM supplied with your camcorder.

Notes on using your computer

Communications with your computer

Communications between your camcorder and your computer may not recover after recovering from Suspend, Resume, or Sleep.

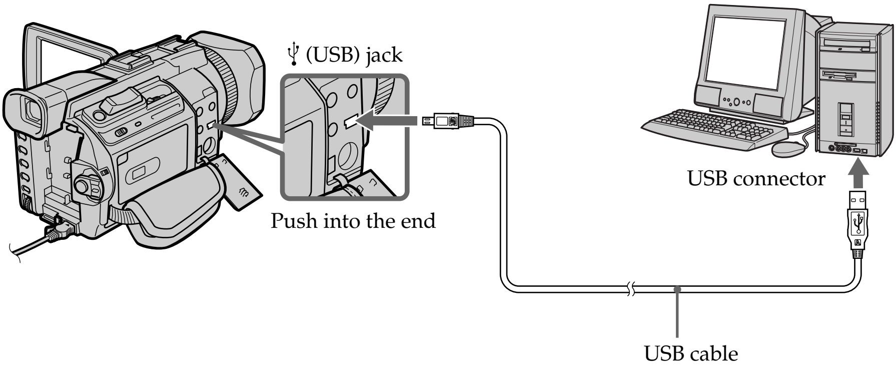
Viewing images recorded on a "Memory Stick" on your computer – For Windows users

Viewing images

Before operation

- You need to install the USB driver to view "Memory Stick" images on your computer (p. 195).
  An application such as Windows Media Player must be installed to play back moving pictures in Windows environment.
- Set USBCONNECT in 🧰 to NORMAL in the menu settings. (The default setting is set to NORMAL.)

(1) Turn on your computer and allow Windows to load.
(2) Insert a "Memory Stick" into your camcorder, and connect the AC power adaptor to your camcorder.
(3) Set the POWER switch to MEMORY.
(4) Connect the ψ (USB) jack on your camcorder to the USB connector on your computer using the supplied USB cable.
USB MODE appears on the LCD screen of your camcorder.



(5) Open "My Computer" on Windows and double-click the newly recognised drive (Example: "Removable Disk (E:)").
The folders inside the "Memory Stick" are displayed.
(6) Select and double-click the desired image file from the folder.
For the detailed folder and file name, see "Image file storage destinations and image files." (p. 207)

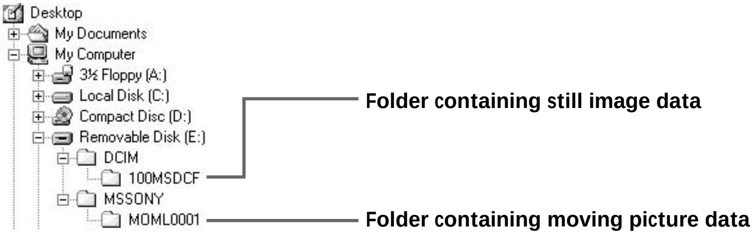
Desired file type	Double-click in this order
Still image	"Dcim" folder → "100msdcf" folder → Image file
Moving picture*	"Mssony" folder → "Moml0001" folder → Image file*

* Copying a file to the hard disk of your computer before viewing it is recommended. If you play back the file directly from the "Memory Stick," the image and sound may break off.

Image file storage destinations and image files

Image files recorded with your camcorder are grouped in folders by recording mode. The meanings of the file names are as follows. □□□□ stands for any number within the range from 0001 to 9999.

For Windows Me users
(When your camcorder is recognised as the drive [E:])


Desktop
My Documents
My Computer
3½ Floppy (A:)
Local Disk (C:)
Compact Disc (D:)
Removable Disk (E:)
DCIM
100MSDCF
MSSONY
MOML0001
Folder containing still image data
Folder containing moving picture data

Folder	File	Meaning
100MSDCF	DSC0□□□□.JPG	Still image file
MOML0001	MOV0□□□□.MPG	Moving picture file

Disconnect the USB cable and eject the "Memory Stick" or set the POWER switch to OFF (CHG)

– For Windows 2000 Professional/Me, Windows XP Home Edition/Professional users

To disconnect the USB cable, eject the "Memory Stick" or set the POWER switch to OFF (CHG) following the procedure below.

(1) Move the cursor to the "Unplug or Eject Hardware" icon on the Task Tray and click to cancel the applicable drive.

(2) After the "Safe to remove" message appears, disconnect the USB cable and eject the "Memory Stick" or set the POWER switch to OFF(CHG).

Connecting your camcorder to your computer using the USB cable – For Macintosh users

When connecting to a computer using the USB jack

Before connecting your camcorder to your computer, **install the USB driver** on the computer. The USB driver is packaged together with application software for viewing images on the CD-ROM supplied with your camcorder.

Recommended computer usage environment when connecting via USB cable and viewing "Memory Stick" images on your computer

Mac OS 8.5.1/8.6/9.0/9.1/9.2 or Mac OS X (v10.0/v10.1)
Standard installation is required.
However, note that the update to Mac OS 9.0/9.1 should be used for the following models.

- iMac with the Mac OS 8.6 standard installation and a slot loading type CD-ROM drive
- iBook or Power Mac G4 with the Mac OS 8.6 standard installation

The USB connector must be provided as standard.

QuickTime 3.0 or newer must be installed (to play back moving pictures).

Notes

- Operations are not guaranteed for the Macintosh environment if you connect two or more USB equipment to a single computer at the same time, or when using a hub.
- Some equipment may not operate depending on the type of USB equipment that is used simultaneously.
- Operations are not guaranteed for all the recommended computer environments mentioned above.
- Macintosh and Mac OS, QuickTime are trademarks of Apple Computer Inc.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies. Furthermore, "TM" and "®" are not mentioned in each case in this manual.

Connecting your camcorder to your computer using the USB cable – For Macintosh users

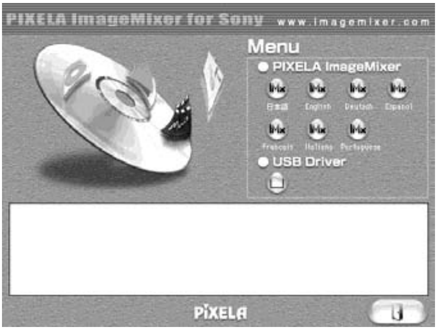
Installing the USB driver

Do not connect the USB cable to your computer before installation of the USB driver is completed.

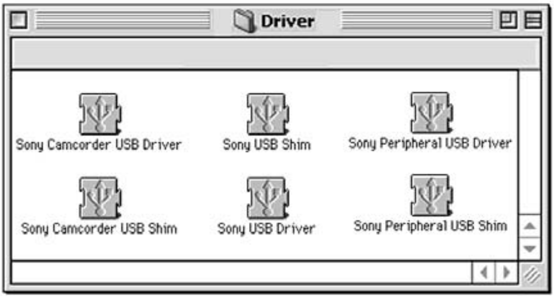
For Mac OS 8.5.1/8.6/9.0 users

(1) Turn on your computer and allow the Mac OS to load.

(2) Insert the supplied CD-ROM into the CD-ROM drive of your computer. The application software screen appears.


PIXELA ImageMixer for Sony
www.imagemixer.com
Menu
● PIXELA ImageMixer
English
Deutsch
● USB Driver
PIXELA

(3) Click the "USB Driver" to open the folder containing the six files related to "Driver."


Driver
Sony Camcorder USB Driver
Sony USB Shim
Sony Peripheral USB Driver
Sony Camcorder USB Shim
Sony USB Driver
Sony Peripheral USB Shim

(4) Select the following two files, and drag and drop them into the System Folder.
- Sony Camcorder USB Driver
- Sony Camcorder USB Shim

(5) When the message appears, click "OK." The USB driver is installed on your computer.

(6) Remove the CD-ROM from the computer.

(7) Restart your computer.

For Mac OS 9.1/9.2/Mac OS X (v10.0/v10.1)

The USB driver need not be installed. Your Mac automatically recognises the "Memory Stick" as a drive just by connecting your Mac using the USB cable.

Viewing images recorded on a "Memory Stick" on your computer – For Macintosh users

Viewing images

Before operation
You need to install the USB driver to view "Memory Stick" images on your computer (p. 209).
QuickTime 3.0 or newer must be installed to play back moving pictures.

(1) Turn on your computer and allow Mac OS to load.
(2) Insert a "Memory Stick" into your camcorder, and connect the AC power adaptor to your camcorder.
(3) Set the POWER switch to MEMORY.
(4) Connect the ψ (USB) jack on the camcorder to the USB connector on your computer using the supplied USB cable.
USB MODE appears on the LCD screen of your camcorder.
(5) Double-click the "Memory Stick" icon on the desktop.
The folders inside the "Memory Stick" are displayed.
(6) Select and double-click the desired image file from the folder.

Desired file type	Double-click in this order
Still image	"Dcim" folder → "100msdcf" folder → Image file
Moving picture*	"Mssony" folder → "Moml0001" folder → Image file*

* Copying a file to the hard disk of your computer before viewing it is recommended. If you play back the file directly from the "Memory Stick," the image and sound may break off.

Disconnect the USB cable and eject the "Memory Stick" or set the POWER switch to OFF(CHG)

Follow the procedure below.

(1) Close all running applications.
Make sure that the access lamp of your camcorder is not lit.
(2) Drag the "Memory Stick" icon into the "Trash." Alternatively, select the "Memory Stick" icon by clicking on it, and then select "Eject disk" from the "Special" menu at the top left of the screen.
(3) Disconnect the USB cable or eject the "Memory Stick" or set the POWER switch of your camcorder to OFF (CHG).

For Mac OS X (v10.0) users
Shutting down your computer, then disconnect the USB cable and eject the "Memory Stick" or set the POWER switch to OFF (CHG).

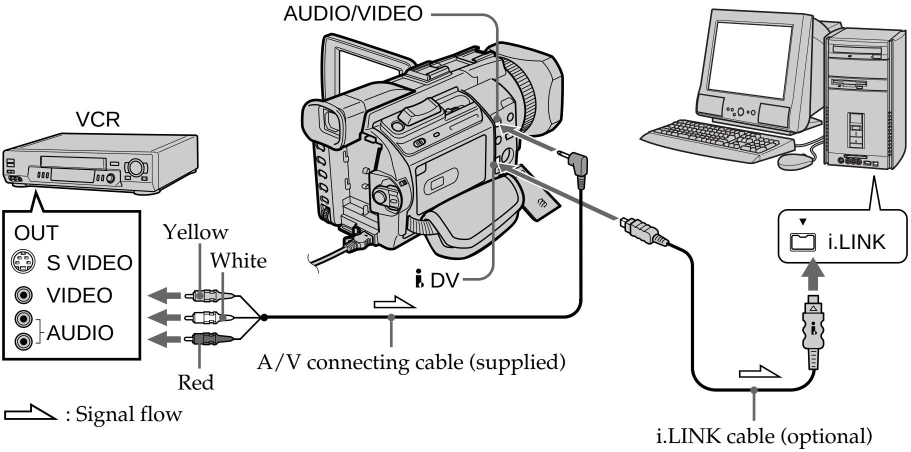
Capturing images from an analog video unit on your computer – Signal convert function

You can capture images and sound from an analog video unit connected to your computer which has the i.LINK jack connected to your camcorder.

Before operation

Set DISPLAY in ETC to LCD in the menu settings. (The default setting is LCD.)

(1) Set the POWER switch to VCR.
(2) Press MENU, then turn the SEL/PUSH EXEC dial to set A/V → DV OUT in V to ON, then press the dial. (p. 216)
(3) Start playback on the analog video unit.
(4) Start procedures for capturing images and sound on your computer. The operation procedures depend on your computer and the software you are using.
For details on how to capture images, refer to the instruction manual of your computer and software you are using.



After capturing images and sound

Stop capturing procedures on your computer , and stop the playback on the analog video unit.

Notes

- You need to install software that supports the video signal exchange.
- Depending on the state of the video signals, the computer may not be able to output the images correctly when you convert video signals into digital video signals via your camcorder.
- You can capture images and sound with an S video cable (optional) instead of the A/V connecting cable (supplied).

If your computer has a USB connector

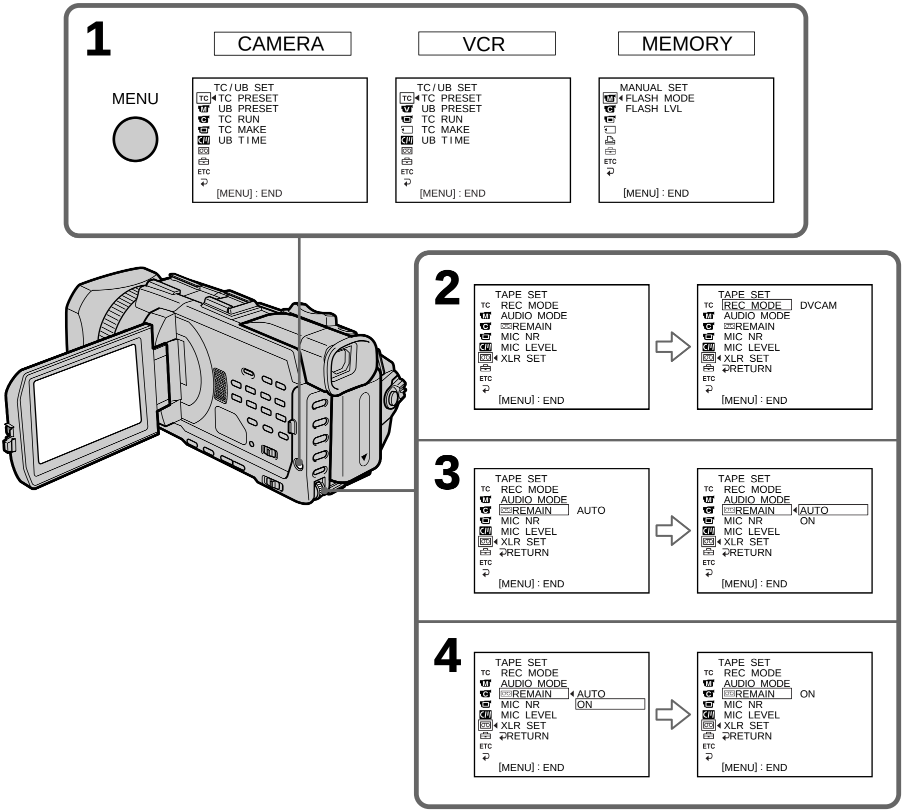
You can connect using a USB cable, but images may not be transferred smoothly.

Changing the default settings with the menu

To change the mode settings in the menu settings, select the menu items with the SEL/PUSH EXEC dial. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.

(1) Set the POWER switch to CAMERA, VCR or MEMORY, then press MENU.
(2) Turn the SEL/PUSH EXEC dial to select the desired icon, then press the dial to set.
(3) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial to set.
(4) Turn the SEL/PUSH EXEC dial to select the desired mode, then press the dial to set.
(5) If you want to change other items, select ↩ RETURN and press the dial, then repeat steps 2 to 4.

For details, see “Selecting the mode setting of each item” (p. 213).


1
MENU
CAMERA
TC/UB SET
TC PRESET
UB PRESET
TC RUN
TC MAKE
UB TIME
ETC
[MENU] : END
VCR
TC/UB SET
TC PRESET
UB PRESET
TC RUN
TC MAKE
UB TIME
ETC
[MENU] : END
MEMORY
MANUAL SET
FLASH MODE
FLASH LVL
ETC
[MENU] : END
2
TAPE SET
TC
REC MODE
AUDIO MODE
REMAIN
MIC NR
MIC LEVEL
XLR SET
ETC
[MENU] : END
TAPE SET
REC MODE DVCAM
AUDIO MODE
REMAIN
MIC NR
MIC LEVEL
XLR SET
RETURN
[MENU] : END
3
TAPE SET
REC MODE
AUDIO MODE
REMAIN AUTO
MIC NR
MIC LEVEL
XLR SET
RETURN
[MENU] : END
TAPE SET
REC MODE
AUDIO MODE
REMAIN AUTO
ON
MIC NR
MIC LEVEL
XLR SET
RETURN
[MENU] : END
4
TAPE SET
REC MODE
AUDIO MODE
REMAIN AUTO
ON
MIC NR
MIC LEVEL
XLR SET
RETURN
[MENU] : END
TAPE SET
REC MODE
AUDIO MODE
REMAIN ON
MIC NR
MIC LEVEL
XLR SET
RETURN
[MENU] : END

To make the menu display disappear

Press MENU.

Menu items are displayed as the following icons:

- TC TC/UB SET
- M MANUAL SET
- C CAMERA SET
- V VCR SET
- LCD/VF SET
- MEMORY SET
- PRINT SET
- CM SET
- TAPE SET
- SETUP MENU
- ETC OTHERS

Selecting the mode setting of each item

● is the default setting.

Menu items differ depending on the position of the POWER switch. The screen shows only the items you can operate at the moment.

Icon/item	Mode	Meaning	POWER switch
TC **TC/UB SET**			
TC PRESET	–	Presets/resets the time code (p. 121).	VCR CAMERA
UB PRESET	–	Presets/resets user bits (p. 124).	VCR CAMERA
TC RUN	●REC RUN	Time code value advances only while recording. When making the time code continuous at back space editing, select this setting.	VCR CAMERA
	FREE RUN	Time code advances freely regardless of the camcorder's current operation mode. When adjusting the discrepancy between time code value and real time.	
TC MAKE	●REGEN	Makes the time code continuous at back space editing. Regardless of the TC RUN setting, the running mode is automatically set to REC RUN.	VCR CAMERA
	PRESET	Does not make the time code continuous at back space editing.	
UB TIME	●OFF	Does not set user bits to the real time clock.	VCR CAMERA
	ON	Sets user bits to the real time clock.	

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
M MANUAL SET			
FLASH MODE	● ON	Makes the flash (optional) fire regardless of the surrounding brightness.	CAMERA MEMORY
	AUTO	Makes the flash (optional) fire automatically depending on the surrounding brightness.	
	AUTO ◉	Makes the flash (optional) fire before recording to reduce red-eye.	
FLASH LVL	HIGH	Makes the flash (optional) level higher than normal.	CAMERA MEMORY
	● NORMAL	Normal setting	
	LOW	Makes the flash (optional) level lower than normal.	
AUTO SHTR	● ON	To automatically activate the electronic shutter when shooting in bright conditions	CAMERA
	OFF	To not automatically activate the electronic shutter even when shooting in bright conditions	

Note on FLASH MODE and FLASH LVL
These items can be set only when the optional flash is attached.

Note on FLASH LVL
You cannot adjust FLASH LVL if the external flash (optional) is not compatible with the flash level.

Icon/item	Mode	Meaning	POWER switch
CAMERA SET			
D ZOOM	● OFF	To deactivate the digital zoom. Up to 12× zoom is performed.	CAMERA
	24×	To activate the digital zoom. More than 12× to 24× zoom is performed digitally (p. 33)	
	48×	To activate the digital zoom. More than 12× to 48× zoom is performed digitally	
PHOTO REC	● MEMORY	To record still images on a “Memory Stick” when you press PHOTO in the tape recording or recording standby (p. 48)	CAMERA
	TAPE	To record still images on a tape when you press PHOTO in the tape recording or recording standby (p. 51)	
16:9WIDE	● OFF	——	CAMERA
	ON	To record a 16:9 wide picture (p. 53)	
STEADYSHOT	● ON	To compensate for camera-shake	CAMERA MEMORY
	OFF	To cancel the SteadyShot. Natural pictures are produced when shooting a stationary object with a tripod.	
FRAME REC	● OFF	To deactivate Frame recording	CAMERA
	ON	To activate Frame recording (p. 84)	
INT. REC	ON	To activate interval recording (p. 82)	CAMERA
	● OFF	To deactivate interval recording	
	SET	To set the INTERVAL and REC TIME for interval recording	
HOLOGRAM F	● AUTO	The HOLOGRAM AF emits when focusing on subjects is difficult in dark places (p. 148)	MEMORY
	OFF	The HOLOGRAM AF does not emit.	

Notes on the SteadyShot

- The SteadyShot will not correct excessive camera-shake.
- Attachment of a conversion lens (optional) may influence the SteadyShot.

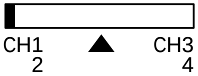
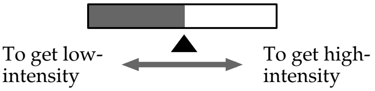
If you cancel the SteadyShot

The SteadyShot off indicator "✋OFF" appears. Your camcorder prevents excessive compensation for camera-shake.

Note on HOLOGRAM F

HOLOGRAM F can be set only when the optional flash is attached.

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
VCR SET			
CH SELECT	● CH1, CH2	To play back the CHs 1/2 audios from each channel. However, if you play back the audios via the camcorder's speaker, the audios are mixed.	VCR
	CH1	To play back the CH1 audio from both channels 1/2	
	CH2	To play back the CH2 audio from both channels 1/2	
AUDIO MIX	——	To adjust the balance between the channels 1/2 (CH1/2) and channel 3/4 (CH3/4) (p. 120) 	VCR
A/V→DV OUT	● OFF	To output digital images and sound in analog format using your camcorder	VCR
	ON	To output analog images and sound in digital format using your camcorder (p. 211)	
NTSC PB	● ON PAL TV	To play back a tape recorded in the NTSC colour system on a PAL system TV	VCR
	NTSC 4.43	To play back a tape recorded in the NTSC colour system on a TV with the NTSC 4.43 mode	
LCD/VF SET			
LCD COLOUR	——	To adjust the colour on the LCD screen, turn the SEL/PUSH EXEC dial 	VCR CAMERA MEMORY
VF B.L.	● BRT NORMAL	To set the brightness on the viewfinder screen to normal	VCR CAMERA MEMORY
	BRIGHT	To brighten the viewfinder screen	
GUIDEFRAME	● OFF	Does not display the guide frame.	CAMERA MEMORY
	ON	Displays the guide frame (p. 63).	

Note on NTSC PB

When you play back a tape on a Multi System TV, select the best mode while viewing the picture on the TV.

Notes on VF B.L.

- When you select BRIGHT, battery life is reduced by about 10 percent during recording.
- When you use power supplies other than the battery pack, BRIGHT is automatically selected.

Even if you adjust LCD COLOUR and/or VF B.L.

The recorded picture will not be affected.

Icon/item	Mode	Meaning	POWER switch
MEMORY SET			
STILL SET			
BURST	● OFF	To not record continuously	MEMORY
	NORMAL	To record from four to 13 images continuously (p. 146)	
	EXP BRKTG	To record three images continuously with different exposure	
	MULTI SCRN	To record nine images continuously, display the images on a single page divided into nine boxes	
QUALITY	● SUPER FINE	To record still images in the finest image quality mode (p. 140)	VCR MEMORY
	FINE	To record still images in the fine image quality mode	
	STANDARD	To record still images in the standard image quality mode	
IMAGESIZE	● 1152 × 864	To record still images at 1152 × 864 size (p. 142)	MEMORY
	640 × 480	To record still images at 640 × 480 size	
MOVIE SET			
IMAGESIZE	● 320 × 240	To record moving pictures at 320 × 240 size (p. 142)	VCR MEMORY
	160 × 112	To record moving pictures at 160 × 112 size	
REMAIN	● AUTO	To display the remaining capacity of the "Memory Stick" in the following cases: • For five seconds after setting the POWER switch to MEMORY or VCR • For five seconds after setting the POWER switch to MEMORY or VCR and inserting a "Memory Stick" • When the remaining capacity of the "Memory Stick" is less than two minutes after setting the POWER switch to MEMORY • For five seconds from the start of moving picture recording • For five seconds after completing a moving picture recording	VCR MEMORY
	ON	To always display the remaining capacity of the "Memory Stick"	

When you select QUALITY
The number of the recording pictures is displayed.

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
MEMORY SET			
PHOTO SAVE	——	To copy still images on the tape onto the "Memory Stick" (p. 170)	VCR
FILE NO.	● SERIES	To assign numbers to file in sequence even if the "Memory Stick" is changed	VCR MEMORY
	RESET	To reset the file numbering each time the "Memory Stick" is changed	
DELETE ALL	——	To delete all unprotected images (p. 186)	MEMORY
FORMAT	● RETURN	To cancel formatting	MEMORY
	OK	To format an inserted "Memory Stick" Formatting erases all information on the "Memory Stick" Check the contents of the "Memory Stick" before formatting. 1. Select FORMAT. 2. Select OK with the SEL/PUSH EXEC dial, then press the dial. 3. After EXECUTE appears, press SEL/PUSH EXEC dial. FORMATTING flashes during formatting. COMPLETE appears when formatting is finished.	

Notes on formatting

- Do not do any of the following while FORMATTING is displayed:
  - – Switch the POWER switch.
  - – Operate buttons.
  - – Eject the "Memory Stick."
- The supplied or optional "Memory Stick" has been formatted at factory. Formatting the "Memory Stick" on your camcorder is not required.
- You cannot format the "Memory Stick" if the write-protect switch on the "Memory Stick" is set to LOCK.
- Format the "Memory Stick" when " FORMAT ERROR" is displayed.
- Formatting erases protected image data on the "Memory Stick."

Icon/item	Mode	Meaning	POWER switch
PRINT SET			
DATE/TIME	● OFF	To make prints without the recording date and time	MEMORY
	DATE	To make prints with the recording date (p. 188)	
	DAY&TIME	To make prints with the recording date and time	
CM SET			
TITLE	——	To superimpose a title or make your own title (p. 126, 129)	VCR CAMERA
TITLEERASE	——	To erase the title you have superimposed (p. 128)	VCR CAMERA
TITLE DSPL	● ON	To display the title you have superimposed	VCR
	OFF	To not display the title	
CM SEARCH	● ON	To search using cassette memory (p. 87, 89, 90, 92)	VCR
	OFF	To search without using cassette memory	
TAPE TITLE	——	To label a cassette (p. 131)	VCR CAMERA
ITEM ERASE	——	To erase each item’s data in cassette memory (p. 133)	VCR CAMERA
ERASE ALL	——	To erase all the data in cassette memory (p. 134)	VCR CAMERA

Note on PRINT SET

DATE/TIME is displayed only when an external printer (optional) is connected to the intelligent accessory shoe.

(continued on the following page)

Icon/item		Mode	Meaning	POWER switch
📼 **TAPE SET**				
	REC MODE	● DVCAM	To record in the DVCAM format	VCR CAMERA
		DV SP	To record in the DV format (SP mode)	
	AUDIO MODE	● FS32K	To record in Fs32K (12-bit) mode (4-channel sounds)	VCR CAMERA
		FS48K	To record in Fs48K (16-bit) mode (2-channel sounds with high quality)	
	📼REMAIN	● AUTO	To display the remaining tape indicator: • For about eight seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape • For about eight seconds after ► or DISPLAY/TOUCH PANEL is pressed	VCR CAMERA
		ON	To always display the remaining tape indicator	
	MIC NR	● ON	To reduce the drum noise via the microphone	VCR
		OFF	To deactivate the function above (p. 31)	CAMERA
	MIC LEVEL	● AUTO	Adjusts audio recording level of the built-in microphone automatically.	VCR CAMERA
		MANUAL	Adjusts audio recording level of the built-in microphone manually (p. 80).	
	XLR SET	——	Adjusts the audio recording level of the XLR adaptor manually (p. 78).	VCR CAMERA

Note on REC MODE

You cannot dub any audio sound on a tape recorded in the DV format (SP mode), even if you recorded it in Fs32K (12-bit) mode.

Notes on AUDIO MODE

- You cannot dub audio sound on a tape recorded in the Fs48K (16-bit) mode.
- When playing back a tape recorded in the Fs48K (16-bit) mode, you cannot adjust the balance in AUDIO MIX.

Note on MIC NR

You cannot set MIC NR when audio sound is input via the MIC jack.

Note on XLR SET

XLR SET can be set only when the supplied XLR adaptor is installed.

Icon/item	Mode	Meaning	POWER switch
SETUP MENU			
CLOCK SET	——	To set the date or time (p. 20)	CAMERA MEMORY
USB STREAM	● OFF	To deactivate the USB Streaming	VCR CAMERA
	ON	To activate the USB Streaming	
USBCONNECT	● NORMAL	To connect and recognise the "Memory Stick" drive	MEMORY
	PTP	To connect and only copy a "Memory Stick" image from your camcorder to a computer (only with Windows XP or Mac OS X) 1. Turn the SEL/PUSH EXEC dial to select "USBCONNECT" followed by "PTP", then press the dial to set. 2. Insert the "Memory Stick" into the camcorder, and connect the camcorder to the computer using a USB cable. Copy Wizard will automatically start up.	
LTR SIZE	● NORMAL	To display selected menu items in normal size	VCR CAMERA MEMORY
	2×	To display selected menu items at twice the normal size	

(continued on the following page)

Icon/item	Mode	Meaning	POWER switch
ETC OTHERS			
DATA CODE*	● DATE/CAM	To display date, time and various settings during playback when pressing DATA CODE on the Remote Commander (p. 43)	VCR MEMORY
	DATE	To display date and time during playback when pressing DATA CODE on the Remote Commander	
WORLD TIME	——	To set the clock to the local time. Turn the SEL/PUSH EXEC dial to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA MEMORY
BEEP	MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	VCR CAMERA MEMORY
	● NORMAL	To output the beep instead of the melody	
	OFF	To cancel all sound including shutter sound	
COMMANDER	● ON	To activate the Remote Commander supplied with your camcorder	VCR CAMERA MEMORY
	OFF	To deactivate the Remote Commander to avoid remote control operation caused by other VCR's remote control	

* When using the Remote Commander

Icon/item	Mode	Meaning	POWER switch
ETC **OTHERS**			
DISPLAY	● LCD	To show the display on the LCD screen and in the viewfinder	VCR CAMERA MEMORY
	V-OUT/LCD	To show the display on a TV screen, LCD screen and in the viewfinder	
DATE REC	● OFF	To not superimpose the date and time on the picture	CAMERA
	ON	To superimpose the date and time on the picture (p. 85)	
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder	CAMERA MEMORY
	OFF	To turn the camera recording lamp off so that the person is not aware of the recording	
VIDEO EDIT	● RETURN	To cancel video editing	VCR
	TAPE	To make programme and dub on the tape in the other VCR (p. 101)	
	MEMORY	To make programme and dub on a “Memory Stick” (p. 167)	
HRS METER	OPERATION	The cumulative total hours of operation is displayed in 10-operation increments	VCR CAMERA
	DRUM RUN	The cumulative total hours of drum rotation with tape threaded is displayed in 10-operation increments	
	TAPE RUN	The cumulative total hours of tape running is displayed in 10-operation increments	
	THREADING	The cumulative number of tape unthreading operation is displayed in 10-operation increments	

Note

If you press DISPLAY/TOUCH PANEL with DISPLAY set to V-OUT/LCD in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

When recording a close subject

When REC LAMP is set to ON, the red camera recording lamp on the front of the camcorder may reflect on the subject if it is close. In this case, we recommend that you set REC LAMP to OFF.

Types of trouble and how to correct trouble

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, remove the power supply and contact your Sony dealer or local authorised Sony service facility. If “C:☐☐:☐☐” appears on the screen, the self-diagnosis display function has worked. See page 231.

In the recording

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	• The POWER switch is not set to CAMERA. ➔ Set it to CAMERA (p. 25). • The tape has run out. ➔ Rewind the cassette or insert a new one (p. 22, 45). • The write-protect tab is set to expose the red mark. ➔ Use a new tape or slide the tab (p. 22). • The tape is stuck to the drum (moisture condensation). ➔ Remove the cassette and leave your camcorder for at least one hour to acclimatise (p. 244).
The power goes off.	• The battery pack is dead or nearly dead. ➔ Install a charged battery pack.
You cannot record still images on a “Memory Stick” in the recording or recording standby.	• PHOTO REC is set to TAPE in menu settings. ➔ Set it to MEMORY (p. 215).
You cannot record still images on a tape.	• PHOTO REC is set to MEMORY in menu settings. ➔ Set it to TAPE (p. 215).
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. ➔ Adjust the viewfinder lens (p. 29).
The SteadyShot does not work.	• STEADYSHOT is set to OFF in the menu settings. ➔ Set it to ON (p. 215).
The autofocusing does not work.	• The setting is the manual focus. ➔ Set FOCUS to AUTO (p. 75). • Shooting conditions are not suitable for autofocus. ➔ Adjust for manual focusing (p. 75).

Types of trouble and how to correct trouble

Symptom	Cause and/or Corrective Actions
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel (p. 27).
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	• The contrast between the subject and background is too high. This is not a malfunction.
A vertical band appears when you shoot a very bright subject.	• This is not a malfunction.
Some tiny white, red, blue or green spots appear on the screen.	• The shutter speed is reduced. This is not a malfunction.
The picture appears too bright, and the subject does not appear on the screen.	• The backlight is active. → Set it off (p. 36). • Adjust the exposure manually. → Cancel the manual adjustment or re-adjust the exposure (p. 73).
The click of the shutter does not sound.	• BEEP is set to OFF in the menu settings. → Set it to MELODY or NORMAL (p. 222).
Black bands appear when you record TV or computer screen.	• Set the STEADYSHOT in the menu settings to OFF (p. 215).
Audio cannot be input via the built-in microphone.	• The XLR adaptor is installed. → Remove the XLR adaptor or input audio via the INPUT1 or INPUT2 connector (p. 29).
An external flash (optional) does not work.	• The power of the external flash is off or the power supply is not installed. → Turn on the external flash or install the power supply. • Two or more external flashes (optional) are attached. → Only one external flash (optional) can be attached.
The image is not bright with video flash light (optional).	• The manual adjustment is not suitable for the situations (The ϟ indicator flashes). → Set the AUTO LOCK selector to AUTO LOCK, or cancel the manual adjustment (p. 66).

(continued on the following page)

In the playback

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	• The POWER switch is not set to VCR. ➔ Set it to VCR (p. 41).
The playback button does not work.	• The cassette has run out of the tape. ➔ Rewind the tape (p. 41).
There are horizontal lines on the picture, or the playback picture is not clear or does not appear.	• The video heads may be dirty. ➔ Clean the heads using the cleaning cassette (optional) (p. 245).
No sound or only a low sound is heard when playing back a tape.	• The volume is turned to minimum. ➔ Turn up the volume (p. 41). • AUDIO MIX is set to CH3/4 in the menu settings. ➔ Adjust AUDIO MIX (p. 216).
Displaying the recorded date, DATE SEARCH does not work.	• The cassette has no cassette memory. ➔ Use a cassette with cassette memory (p. 90). • CM SEARCH is set to OFF in the menu settings. ➔ Set it to ON (p. 219). • The tape has a blank portion between recorded portions (p. 91).
TITLE SEARCH does not work.	• The cassette has no cassette memory. ➔ Use a cassette with cassette memory (p. 89). • CM SEARCH is set to OFF in the menu settings. ➔ Set it to ON (p. 219). • There is no title in the tape. ➔ Superimpose the titles (p. 126). • The tape has a blank portion between recorded portions (p. 89).
The new sound added to the recorded tape is not heard.	• AUDIO MIX is set to the CH1/2 side in the menu settings. ➔ Adjust AUDIO MIX (p. 120).
The title is not displayed.	• TITLE DSPL is set to OFF in the menu settings. ➔ Set it to ON (p. 219).

In the recording and playback

Symptom	Cause and/or Corrective Actions
The power does not turn on when you set the POWER switch to VCR, CAMERA or MEMORY	• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack (p. 15, 16). • The AC power adaptor is not connected to a wall socket. → Connect the AC power adaptor to a wall socket (p. 19).
The end search does not work.	• The tape was ejected after recording when using a cassette without cassette memory (p. 39). • You have not recorded on the new cassette yet (p. 39).
The end search does not work correctly.	• The tape has a blank portion at the beginning or midway (p. 39).
The battery pack is quickly discharged.	• The operating temperature is too low. • The battery pack is not fully charged. → Charge the battery pack fully again (p. 16). • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack (p. 15).
The battery remaining time indicator does not indicate the correct time.	• You have used the battery pack in an extremely hot or cold environment for a long time. • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack (p. 15). • The battery is not fully charged. → Install a charged battery pack (p. 15, 16). • A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the battery remaining indicator is correct (p. 16).
The power goes off although the battery remaining time indicator indicates that the battery pack has enough power to operate.	• A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the battery remaining battery time indicator is correct (p. 16).
The cassette cannot be removed from the holder.	• The power supply is disconnected. → Connect it firmly (p. 15, 19). • The battery is dead. → Use a charged battery pack (p. 15, 16).
The 💧 and ⏏ indicators flash and no functions except for cassette ejection work.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least one hour to acclimatise (p. 244).
CIII indicator does not appear when using a cassette with cassette memory.	• The gold-plated connector of the tape is dirty or dusty. → Clean the gold-plated connector (p. 238).
Remaining tape indicator is not displayed.	• The 📼 REMAIN is set to AUTO in the menu settings. → Set it to ON to always display the remaining tape indicator (p. 220).

(continued on the following page)

When operating using the “Memory Stick”

Symptom	Cause and/or Corrective Actions
The “Memory Stick” does not function.	• The POWER switch is not set to MEMORY. → Set it to MEMORY (p. 138). • The “Memory Stick” is not inserted. → Insert a “Memory Stick” (p. 137).
Recording does not function.	• The “Memory Stick” has already been full. → Delete unnecessary images and record again (p. 184). • The “Memory Stick” formatted incorrectly is inserted. → Format the “Memory Stick” or use another “Memory Stick” (p. 137, 218). • The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135).
The image cannot be deleted.	• The image is protected. → Cancel image protection (p. 183). • The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135).
You cannot format the “Memory Stick.”	• The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135).
Deleting all the images cannot be carried out.	• The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135).
You cannot protect the image.	• The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135). • INDEX screen is not displayed. → Press INDEX to display the INDEX screen and protect the image (p. 183).
You cannot write a print mark on the still image.	• The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135). • INDEX screen is not displayed. → Press INDEX to display the INDEX screen and write the print marks on the screen (p. 187). • You are trying to write a print mark on a moving picture. → Print marks cannot be written on a moving picture (p. 187).
PHOTO SAVE does not work.	• The write-protect switch on the “Memory Stick” is set to LOCK. → Release the lock (p. 135).
You cannot play back images in actual size.	• You may not be able to play back images in actual size when you try to play back images recorded by other equipment. This is not a malfunction.
You cannot play back image data.	• Your camcorder cannot play back some images processed with a computer (The file name will blink). • If you record images with any other equipment, the images may not play back normally on your camcorder.

Others

Symptom	Cause and/or Corrective Actions
The title is not recorded.	• The cassette has no cassette memory. ➔ Use a cassette with cassette memory (p. 126). • The cassette memory is full. ➔ Erase unwanted titles (p. 128). • The cassette is set to prevent accidental erasure. ➔ Slide the write-protect tab so that red portion is not visible (p. 22). • The tape has a blank portion between recorded portions. ➔ Superimpose the title to recorded positions (p. 127).
The cassette label is not recorded.	• The cassette has no cassette memory. ➔ Use a cassette with cassette memory (p. 131). • The cassette memory is full. ➔ Erase unwanted data (p. 128, 133). • The tape is set to prevent accidental erasure. ➔ Slide the write-protect tab so that red mark is not visible (p. 22).
Digital program editing to a tape does not function.	• The input selector on the VCR is not set correctly. ➔ Check the connection and set the input selector on the VCR again (p. 101) • The camcorder is connected to DV equipment of other than Sony using the i.LINK cable. ➔ Set it to IR (p. 102). • You have attempted to set a programme on a blank portion of the tape. ➔ Set the programme again on a recorded portion (p. 109). • The camcorder and the VCR are not synchronized. ➔ Adjust the synchronization (p. 107). • The IR SETUP code is incorrect. ➔ Set the correct code (p. 103).
Digital program editing to a "Memory Stick" does not function.	• Setting programme on a blank portion of the tape is attempted. ➔ Set the programme again on a recorded portion (p. 167).
The Remote Commander supplied with your camcorder does not work.	• COMMANDER is set to OFF in the menu settings. ➔ Set it to ON (p. 222). • Something is blocking the infrared rays. ➔ Remove the obstacle. • The batteries are inserted with + and – incorrectly matching + and – inside the battery compartment. ➔ Insert the batteries correctly (p. 259). • The batteries are dead. ➔ Insert new ones (p. 259).
The picture from a TV or VCR does not appear even when your camcorder is connected to output on the TV or VCR.	• DISPLAY is set to V-OUT/LCD in the menu settings. ➔ Set it to LCD (p. 223).

(continued on the following page)

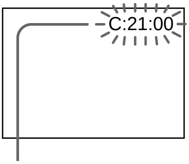
Types of trouble and how to correct trouble

Symptom	Cause and/or Corrective Actions
The cassette cannot be removed even if the cassette lid is open.	• Moisture has started to condense in your camcorder (p. 244).
The melody or beep sounds for five seconds.	• Moisture condensation has occurred. ➔ Remove the cassette and leave your camcorder for at least one hour to acclimatise (p. 244). • Some troubles have occurred in your camcorder. ➔ Remove the cassette and insert it again, then operate your camcorder.
When you set the POWER switch to VCR or OFF (CHG), if you move your camcorder, you may hear a clattering sound from inside your camcorder.	• This is because some functions use a linear mechanism. Your camcorder is not malfunctioning.
You cannot charge the battery pack.	• The POWER switch is not set to OFF (CHG). ➔ Set it to OFF (CHG) (p. 16).
While charging the battery pack, no indicator appears, the indicator flashes in the display window.	• The battery pack is not properly installed. ➔ Install it properly (p. 15). • Something is wrong with the battery pack. ➔ Please contact your Sony dealer or local authorised Sony service facility.
No function works though the power is on.	• Disconnect the mains lead of the AC power adaptor or remove the battery, then reconnect it in about one minute. Turn the power on. If the functions still do not work, press the RESET button using a sharp-pointed object (If you press the RESET button, all the settings including the date and time return to their defaults.) (p. 15, 19, 253).
The buttons do not appear on the touch panel.	• The DISPLAY/TOUCH PANEL button is pressed. ➔ Press the LCD screen lightly. ➔ Press the DISPLAY/TOUCH PANEL button on your camcorder or the DISPLAY button on the Remote Commander (p. 43).
The buttons on the LCD screen do not work.	• Adjust the screen (CALIBRATION) (p. 246).
The indicators appear mirror-reversed in the viewfinder.	• The mirror mode is activated. This is not a malfunction (p. 34).
The indicators displayed on the TV screen appear mirror-reversed.	• When you set DISPLAY to V-OUT/LCD in the menu settings in the mirror mode, the indicators displayed on the TV screen also appear mirror-reversed. This is not a malfunction (p. 34).
Image data cannot be transferred by the USB connection.	• The USB cable was connected before installation of the USB driver was completed. ➔ Uninstall the incorrect USB driver and re-install the USB driver (p. 195, 198, 209). • USBCONNECT is set to PTP in the menu settings when the POWER switch is set to MEMORY. ➔ Set it to NORMAL (p. 221).

Self-diagnosis display

Your camcorder has a self-diagnosis display function.
This function displays the current state of your camcorder as a 5-digit code (a combination of a letter and figures) on the screen. If a 5-digit code is displayed, check the following list of codes. The last two digits (indicated by ☐☐) differ depending on the state of your camcorder.

LCD screen, Viewfinder or Display window



Self-diagnosis display

- C:☐☐:☐☐
  You can service your camcorder yourself.
- E:☐☐:☐☐
  Contact your Sony dealer or local authorised Sony service facility.

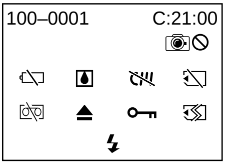
Five-digit display	Cause and/or Corrective Actions
C:04:☐☐	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. ➔ Use an "InfoLITHIUM" battery pack (p. 18, 239).
C:21:☐☐	• Moisture condensation has occurred. ➔ Remove the cassette and leave your camcorder for at least one hour to acclimatise (p. 244).
C:22:☐☐	• The video heads are dirty. ➔ Clean the heads using the cleaning cassette (optional) (p. 245).
C:31:☐☐ C:32:☐☐	• A malfunction other than the above that you can service has occurred. ➔ Remove the cassette and insert it again, then operate your camcorder. ➔ Disconnect the mains lead of the AC power adaptor or remove the battery pack. After reconnecting the power supply, operate your camcorder.
E:20:☐☐ E:61:☐☐ E:62:☐☐	• A malfunction that you cannot service has occurred. ➔ Contact your Sony dealer or local authorised Sony service facility and inform them of the 5-digit code (example: E:61:10).

If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorised Sony service facility.

Warning indicators and messages

If indicators and messages appear on the screen or in the display window, check the following:
See the page in parentheses "( )" for more information.

Warning indicators



100-0001 Warning indicator pertaining to files

Slow flashing:
- The file is corrupted.
- The file is unreadable.
- You are trying to use the MEMORY MIX on a moving picture (p. 155).

C:21:00 **Self-diagnosis display** (p. 231).

The battery is dead or nearly dead

Slow flashing:
- The battery is nearly dead.
  Depending on the operating conditions, environment and battery condition, the indicator may flash even if there are approximately five to 10 minutes remaining.

Fast flashing:
- The battery is dead (p. 16).

Moisture condensation has occurred*

Fast flashing:
- Eject the cassette, turn off your camcorder, and leave it for about one hour with the cassette compartment open (p. 244).

Warning indicator pertaining to cassette memory*

Slow flashing:
- No cassette with cassette memory is inserted (p. 236).

Warning indicator pertaining to the "Memory Stick"

Slow flashing:
- No "Memory Stick" is inserted.

Fast flashing*:
- The "Memory Stick" is not readable on your camcorder (p. 135).
- The image cannot be recorded on the "Memory Stick."

Warning indicator pertaining to "Memory Stick" formatting*

Fast flashing:
- The "Memory Stick" is not formatted correctly (p. 218).
- The "Memory Stick" data is corrupted (p. 135).

Warning indicator pertaining to the tape

Slow flashing:
- The tape is near the end.
- No cassette is inserted.*
- The write-protect tab on the cassette is exposed (red) (p. 22).*

Fast flashing:
- The cassette has run out of the tape.*

⏏ You need to eject the cassette*

Slow flashing:
- The write-protect tab on the cassette is exposed (red) (p. 22).

Fast flashing:
- Moisture condensation has occurred (p. 244).
- The cassette has run out of the tape.
- The self-diagnosis display function is activated (p. 231).

The image is protected*

Slow flashing:
- The image is protected (p. 183).

ϟ Warning indicator pertaining to the flash

Slow flashing:
- During charging

Fast flashing:
- There is something wrong with the external flash (optional).

Warning indicator pertaining to recording

Slow flashing:
- The still image cannot be recorded on a tape or the "Memory Stick" (p. 48, 52)

* You hear the melody or beep.

Warning messages

• CLOCK SET	Set the date and time (p. 20).
• FOR "InfoLITHIUM" BATTERY ONLY	Use an "InfoLITHIUM" battery pack (p. 18).
• CLEANING CASSETTE**	The video heads are dirty (p. 245).
• FULL	The cassette memory is full.*
• ⊖ 48K	AUDIO MODE is set to 48K (p. 220).* You cannot dub new audio.
• ⊖ REC MODE	REC MODE is set to DV SP (p. 220).* You cannot dub new audio.
• ⊖ TAPE	There is no recorded portion on the tape.* You cannot dub new audio.
• ⊖ "i.LINK" CABLE	The i.LINK cable is connected (p. 120).* You cannot dub new audio.
• FULL	The "Memory Stick" is full (p. 147).*
• ⊶	The write-protect switch on the "Memory Stick" is set to LOCK (p. 135).*
• NO FILE	No still image is recorded on the "Memory Stick" (p. 173, 189).*
• NO MEMORY STICK	No "Memory Stick" is inserted.*
• AUDIO ERROR	You are trying to record an image with sound that cannot be recorded by your camcorder on the "Memory Stick" (p. 164).*
• MEMORY STICK ERROR	The "Memory Stick" data is corrupted (p. 137).*
• FORMAT ERROR	The "Memory Stick" is not recognised. Check the format (p. 152, 218).*
• ⊶ DIRECTORY ERROR	There are more than two of the same directories (p. 173).*
• PLAY ERROR	The image cannot be played back. Reinsert the "Memory Stick," then play back the image again.
• REC ERROR	Check the input signals before retrying recording.
• COPY INHIBIT	The tape contains copyright control signals for copyright protection of software (p. 237).*
• ⏏ TAPE END	The tape has reached its end.*
• NO TAPE	Insert a cassette.*
• NO PRINT MARK	You selected MARKED in 9PIC PRINT on the touch panel using a "Memory Stick" containing no image with a print mark. (p. 189)*
• NO STILL IMAGE FILE	You selected MULTI in 9PIC PRINT on the touch panel using a "Memory Stick" containing no still image. (p. 189)*
• DELETING	You have pressed PHOTO during deleting all images on the "Memory Stick."*
• FORMATTING	You have pressed PHOTO during formatting a "Memory Stick."*
• ϟ NOW CHARGING	Charging an external flash (optional) does not work correctly.*

* You hear the melody or beep.

** The ⊗ indicator and " CLEANING CASSETTE" message appear one after another on the screen.

Compatibility of DVCAM and DV formats

DVCAM format is developed as a more reliable and higher end format than consumer DV format. Here explained are the differences, compatibility, and limitations on editing about DVCAM and DV formats.

Differences between DVCAM and DV formats

Item	DVCAM	DV
Track pitch	15 μm	10 μm
Audio sampling frequency	12 bit: 32 kHz 16 bit: 48 kHz	12 bit: 32 kHz 16 bit: 32 kHz, 44.1 kHz, 48 kHz
Audio recording mode [1]	Lock mode	Unlock mode

[1] There are two modes for audio recording, lock mode and unlock mode. In lock mode, the sampling frequencies of audio and video are synchronized. In unlock mode, which consumer DV format adopts, the two sampling frequencies are independent. Therefore, lock mode is more effective than unlock mode in digital processing and smooth transition during audio editing.

Mini DVCAM and mini DV cassettes

Both mini DVCAM and mini DV cassettes can be used on mini DVCAM or mini DV video equipment. The recording format of picture is defined according to recorder's format as described below.

Recorder's format	Cassette's format	Recording format
DVCAM	DVCAM	DVCAM
	DV	DVCAM
DV	DVCAM	DV
	DV	DV

This digital camcorder complies with DVCAM format. Though mini DV cassettes can be used for recording, we recommend you to use mini DVCAM cassettes to get the most out of high reliability of DVCAM format. The recording time of mini DV cassettes is 2/3 shorter than that indicated on the mini DV cassettes.

Compatibility on playback

Some tapes cannot be played back on mini DVCAM or mini DV video equipment.

Tape	On DV video equipment	On DVCAM video equipment
DV-formatted	Can be played back	Can be played back (only when recorded in SP mode)
DVCAM-formatted	Some equipment may be able to play back	Can be played back

Compatibility of DVCAM and DV formats

Compatibility on editing using DV connectors

When this digital camcorder is connected to other DVCAM or DV video equipment using DV connectors, the recording format of edited tapes is defined according to recorder's format as described below.

Source tape	**Player's format**	**Recorder's format**	**Recording format**
DVCAM-formatted [2] [3]	DVCAM	DVCAM	DVCAM
DVCAM-formatted	DVCAM	DV	DV [4]
DVCAM-formatted [2]	DV [5]	DVCAM	DVCAM [7]
DVCAM-formatted	DV [5]	DV	DV [4]
DV-formatted [6]	DVCAM	DVCAM	DVCAM [1]
DV-formatted [6]	DVCAM	DV	DV
DV-formatted	DV	DVCAM	DVCAM [1]
DV-formatted	DV	DV	DV

[1] When using the mini DVCAM video equipment to carry out DV dubbing of a tape recorded in DV format, the tape produced will be in DVCAM format as follows:
- Audio recording mode will be unlock mode.
- The time code format will be partly maladjusted. (There will be no effect on the recorded picture except in certain case.)

[2] If the tape is to be dubbed is DVCAM formatted tape as in 1), the tape produced will be in DVCAM format as follows:
- Audio recording mode will be unlock mode.
- The time code format will be partly maladjusted.

[3] Depending on signal conditions of the source tape, you may not be able to edit the tape using the DV connectors.

[4] Audio recording mode of the edited tape is lock mode.

[5] Some mini DV video equipment may be able to play back a DVCAM-formatted tape. Even if the tape is played back, contents of the playback cannot be guaranteed.

[6] DV-formatted tapes recorded in SP mode only can be used as source tapes.

[7] Depending on model of video equipment, you may not be able to edit.

Limitations on editing

You will find the following limitations when editing.

- Due to the difference of a track pitch, you cannot record or edit on DV-formatted tapes using mini DVCAM video equipment.
- Depending on signal conditions, you may not be able to record or edit on DVCAM-formatted tapes.

In these cases, do the following:

- Edit using audio/video jacks.
- Dub a DV-formatted tape using audio/video jacks, then use the dubbed tape as a source tape.

Usable cassettes

Selecting cassette types

You can use DVCAM mini DVCAM cassette* and Mini DV mini DV cassette* in this camcorder. You cannot use any other 8 8 mm, Hi8 Hi8, D Digital8, VHS VHS, VHSC VHSC, SVHS S-VHS, SVHSC S-VHSC, B Betamax, DV DV or MICROMV MICRO MV cassette.

* There are two types of mini DVCAM/mini DV cassettes: with cassette memory and without cassette memory. Cassettes with cassette memory have the CM (Cassette Memory) mark.
We recommend that you use cassette with cassette memory.

IC memory is mounted on this type of cassette. Your camcorder can read and write data such as dates of recording or titles, etc. to this memory.
The functions using the cassette memory require successive signals recorded on the tape. If the tape has a blank portion at the beginning or between recorded portions, titles may not be displayed properly or the search functions may not work properly.
Perform the following to prevent a blank portion from being made on the tape.
Press END SCH to go to the end of the recorded portion before you begin the next recording if you operate the following:
– You have ejected the cassette while recording.
– You have played back the tape.
– You have used the edit search.

If there is a blank portion or discontinuous signal on your tape, re-record from the beginning to the end of the tape as described above.
The same result may occur when you record using a digital video camera recorder without a cassette memory on a tape recorded by one with the cassette memory.

CM16K mark on the cassette
The memory capacity of cassettes marked with CM16K is 16Kbit. Your camcorder can accommodate tapes having a memory capacity of up to 16Kbit. 16Kbit cassettes are marked with CM16K.

The maximum number of data recordable on cassette memory (when using 16 Kbit cassette memory)

Data	Numbers
INDEX	135 (15 bytes/One item of the data)
TITLE	106
DATE	24 (10 bytes/One item of the data)
PHOTO	48 (10 bytes/One item of the data)
CASSETTE LABEL	1

The numbers above are as a guide.

DVCAM™ This is the mini DVCAM mark.
Mini DV Digital Video Cassette This is the mini DV mark.
CM Cassette Memory This is the Cassette Memory mark.

These are trademarks.

Copyright signal

When you play back

Using any other video camera recorder, you cannot record on tape that has recorded copyright control signals for copyright protection of software which is played back on your camcorder.

When you record

You cannot record software on your camcorder that contains copyright control signals for copyright protection of software.
“COPY INHIBIT” appears on the screen or on the TV screen if you try to record such software.
Your camcorder does not record copyright control signals on the tape when it records.

Audio mode

Fs32K (12-bit) mode: The original sound can be recorded in channels 1 and 2, and the new sound in channels 3 and 4 in 32 kHz. The balance between channels 1/2 and channels 3/4 can be adjusted by selecting AUDIO MIX in the menu settings during playback and audio dubbing. Both sounds can be played back. You can monitor the sound during audio dubbing.
Fs48K (16-bit) mode: A new sound cannot be recorded but the original sound can be recorded in high quality using two channels. The audio mode can be indicated on the screen.
You may not add a sound on a DVCAM-formatted tape which does not comply with the condition of the DVCAM format as described on page 234 or when you recorded on a DV-formatted tape. In this case, “NS” appears on the screen.

Notes on the cassette

When affixing a label on the cassette

Be sure to affix a label only at the locations illustrated below **[a]** to prevent malfunction of your camcorder.

After using the cassette

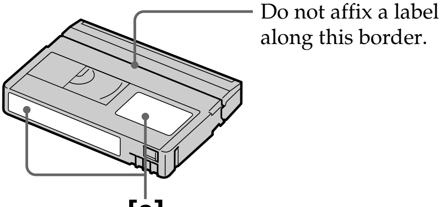
Rewind the tape to the beginning, put the cassette in its case, and store it upright.

When the cassette memory does not work

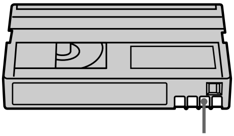
Reinsert a cassette. The gold-plated connector of the cassette may be dirty or dusty.

Cleaning the gold-plated connector

If the gold-plated connector on the cassette is dirty or dusty, the remaining tape indicator is sometimes not displayed correctly, and you may not be able to operate functions using cassette memory. Clean the gold-plated connector with a cotton-wool swab, about every 10 times that the cassette is ejected. **[b]**



[a]



[b]

About the “InfoLITHIUM” battery pack

What is the “InfoLITHIUM” battery pack?

The “InfoLITHIUM” battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between the battery pack and an optional AC adaptor/charger.
The “InfoLITHIUM” battery pack calculates the power consumption according to the operating conditions of your camcorder, and displays the remaining battery time in minutes.
With an AC adaptor/charger (optional), the remaining battery time and charging time are displayed.

Charging the battery pack

- Be sure to charge the battery pack before you start using your camcorder.
- We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F) until FULL appears in the display window, indicating that the battery pack is fully charged. If you charge the battery outside of this temperature range, you may not be able to efficiently charge the battery pack.
- After charging is completed, either disconnect the cable from the DC IN jack on your camcorder or remove the battery pack.

Effective use of the battery pack

- Battery pack performance decreases in low-temperature surroundings. So, the time that the battery pack can be used becomes shorter. We recommend the following to ensure longer battery pack use:
  - Put the battery pack in a pocket to warm it up, and insert it in your camcorder immediately before you start taking shots.
  - Use the large-capacity battery pack (NP-FM70/QM71/FM90/FM91/QM91, optional).
- Frequently using the LCD panel or frequently operating playback, fast forward or rewind wears out the battery pack faster. We recommend using the large-capacity battery pack (NP-FM70/QM71/FM90/FM91/QM91, optional).
- Be sure to turn the POWER switch to OFF (CHG) when not taking shots or playing back on your camcorder. The battery pack is also consumed when your camcorder is in the standby or playback pause.
- Have spare battery packs handy for two or three times the expected recording time, and make trial recordings before taking the actual recording.
- Do not expose the battery pack to water. The battery pack is not water-resistant.

Remaining battery time indicator

- If the power goes off although the remaining battery time indicator indicates that the battery pack has enough power to operate, fully charge the battery pack again so that the indication on the remaining battery time indicator is correct. Note, however, that the correct battery indication sometimes will not be restored if it is used in high temperatures for a long time or left in a fully charged state, or the battery pack is frequently used. Regard the remaining battery time indication as the approximate recording time.
- The 🔋 mark indicating that there is little remaining battery time sometimes flashes depending on the operating conditions or ambient temperature and environment even if the remaining battery time is about five to ten minutes.

How to store the battery pack

- If the battery pack is not used for a long time, do the following procedure once per year to maintain proper function.
  1. Fully charge the battery.
  2. Discharge on your electronic equipment.
  3. Remove the battery from the equipment and store it in a dry, cool place.
- To use the battery pack up on your camcorder, leave your camcorder in the recording standby until the power goes off without a cassette inserted.

Battery life

- The battery life is limited. Battery capacity drops little by little as you use it more and more, and as time passes. When the available battery time is shortened considerably, a probable cause is that the battery pack has reached the end of its life. Buy a new battery pack.
- The battery life varies according to how it is stored and operating conditions and environment for each battery pack.

About i.LINK

The DV Interface on this unit is an i.LINK-compliant DV Interface. This section describes the i.LINK standard and its features.

What is i.LINK?

i.LINK is a digital serial interface for handling digital video, digital audio and other data in two directions between equipment having the i.LINK jack, and for controlling other equipment.
i.LINK-compatible equipment can be connected by a single i.LINK cable. Possible applications are operations and data transactions with various digital AV equipment.
When two or more i.LINK-compatible equipment are connected to this unit in a daisy chain, operations and data transactions are possible with not only the equipment that this unit is connected to but also with other devices via the directly connected equipment.
Note, however, that the method of operation sometimes varies according to the characteristics and specifications of the equipment to be connected, and that operations and data transactions are sometimes not possible on some connected equipment.

Note

Normally, only one piece of equipment can be connected to this unit by the i.LINK cable. When connecting this unit to i.LINK-compatible equipment having two or more i.LINK jacks (DV jacks), refer to the operating instructions of the equipment to be connected.

About the name “i.LINK”

i.LINK is a more familiar term for IEEE 1394 data transport bus proposed by SONY, and is a trademark approved by many corporations.
IEEE 1394 is an international standard standardised by the Institute of Electrical and Electronic Engineers.

i.LINK baud rate

i.LINK’s maximum baud rate varies according to the equipment. Three maximum baud rates are defined:

S100 (approx. 100Mbps*)
S200 (approx. 200Mbps)
S400 (approx. 400Mbps)

The baud rate is listed under “Specifications” in the operating instructions of each equipment. It is also indicated near the i.LINK jack on some equipment.
The maximum baud rate of equipment on which it is not indicated such as this unit is “S100”.
When units are connected to equipment having a different maximum baud rate, the baud rate sometimes differs from the indicated baud rate.

***What is Mbps?**

Mbps stands for megabits per second, or the amount of data that can be sent or received in one second. For example, a baud rate of 100Mbps means that 100 megabits of data can be sent in one second.

About i.LINK

i.LINK functions on this unit

For details on how to dub when this unit is connected to other video equipment having DV Interface, see page 100 and 114.
This unit can also be connected to other i.LINK (DV Interface) compatible equipment made by SONY other than video equipment.
For details on connection with i.LINK cable and necessary software, refer to the operating instructions supplied with the connected device.

Required i.LINK cable

Use the Sony i.LINK 4-pin-to-4-pin cable (during DV dubbing).

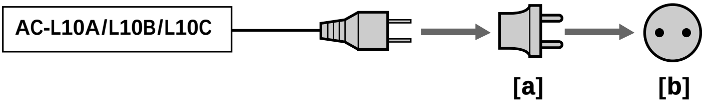
i.LINK and i are trademarks.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

When charging the battery pack, use a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet **[b]**.



Your camcorder is a PAL system based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV with the AUDIO/VIDEO input jack. The following shows TV colour systems used overseas.

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Holland, Hong Kong, Hungary, Italy, Kuwait, Malaysia, New Zealand, Norway, Poland, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, United Kingdom etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

NTSC system
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Guyana, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system
Bulgaria, France, Guiana, Iran, Iraq, Monaco, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 222 for more information.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this state, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep and the 💧 indicator flashes. When the ⏏ indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation has occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about one hour with the cassette lid open. Your camcorder can be used again if the 💧 indicator does not appear when the power is turned on again.
If moisture starts to condense, your camcorder sometimes cannot detect condensation. If this happens, the cassette is sometimes not ejected for 10 seconds after the cassette lid is opened. This is not a malfunction. Do not close the cassette lid until the cassette is ejected.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

- You bring your camcorder from a ski slope into a place warmed up by heating device.
- You bring your camcorder from an air-conditioned car or room into a hot place outside.
- You use your camcorder after a squall or a shower.
- You use your camcorder in a high temperature and humidity place.

How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about one hour).

Maintenance information and precautions

Maintenance information

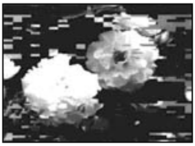
Cleaning the video heads

To ensure normal recording and clear pictures, clean the video heads. The video heads may be dirty when:

- Mosaic-pattern noise appears on the playback picture.
- Playback pictures do not move.
- Playback pictures do not appear.
- The ⊗ indicator and “📼 CLEANING CASSETTE” message appear one after another, or the ⊗ indicator flashes on the screen during recording.

If the above problem **[a]**, **[b]** or **[c]** occurs, clean the video heads for 10 seconds with the Sony DVM-12CLD cleaning cassette (optional). Check the picture and if the above problem persists, repeat cleaning.

[a]



[b]

[c]

If the video heads get dirtier, the entire screen becomes blue **[c]**.

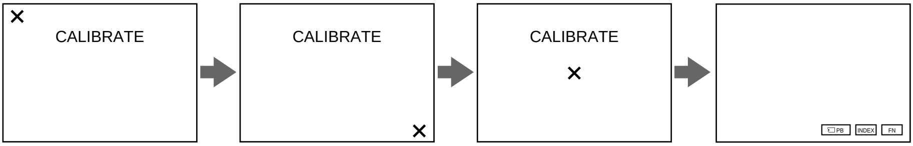
Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using the Cleaning cloth (supplied) to clean the LCD screen. When you use the LCD Cleaning Kit (optional), do not apply the cleaning liquid directly to the LCD screen. Clean the LCD screen with cleaning paper moistened with the liquid.

Adjusting the LCD screen (CALIBRATION)

The buttons on the touch panel may not work correctly. If this happens, follow the procedure below. You cannot adjust the LCD screen when the LCD screen is rotated 180 degrees.

(1) Set the POWER switch to OFF (CHG).
(2) Eject the cassette from your camcorder, then disconnect any connecting cable from your camcorder.
(3) Set the POWER switch to VCR while pressing DISPLAY/TOUCH PANEL on your camcorder, then keep pressing DISPLAY/TOUCH PANEL for about five seconds.
(4) Follow the procedure below using an object such as the corner of a "Memory Stick" supplied with your camcorder.
① Touch ✕ at the upper left corner.
② Touch ✕ at the lower right corner.
③ Touch ✕ in the middle of the screen.



Note
If you do not press the right spot, ✕ always returns to the position at the upper left corner. In this case, start from step 4 again.

Charging the built-in rechargeable battery

Your camcorder has a built-in rechargeable battery so that the date, time and other settings are retained even when the POWER switch is turned off. The built-in rechargeable battery is always charged as long as you are using your camcorder. The battery, however, will become discharged gradually if you do not use your camcorder. It will be completely discharged in **about four months** if you do not use your camcorder at all. Even if the built-in rechargeable battery is not charged, it will not affect camcorder operation. To retain the date, time, and other information, charge the battery if the battery is discharged.

Charging the built-in rechargeable battery:

- Connect your camcorder to mains using the AC power adaptor supplied with your camcorder, and leave your camcorder with the POWER switch turned off for more than 24 hours.
- Or, install a charged battery pack in your camcorder, and leave your camcorder with the POWER switch set to OFF (CHG) for more than 24 hours.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in these operating instructions.
- If any solid object or liquid gets inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF (CHG) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not press the LCD screen with a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

On handling tapes

- Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.
- Do not open the cassette protect cover or touch the tape.
- Avoid touching or damaging the terminals. To remove dust, clean the terminals with a soft cloth.

Camcorder care

- Remove the cassette, and periodically turn on the power, operate the CAMERA and VCR sections and play back a tape for about three minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

AC power adaptor

- Unplug the unit from the wall socket when you are not using it for a long time. To disconnect the mains lead, pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the mains lead forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electric shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

About care and storage of the lens

- Wipe the surface of the lens clean with a soft cloth in the following instances:
  - When there are fingerprints on the lens surface.
  - In hot or humid locations.
  - When the lens is used in environments such as the seaside.
- Store the lens in a well-ventilated location subject to little dirt or dust.

To prevent mold from growing, periodically perform the above.
We recommend turning on and operating the video camera recorder about once per month to keep the video camera recorder in an optimum state for a long time.

Battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Notes on dry batteries

To avoid possible damage from battery leakage or corrosion, observe the following:

– Be sure to insert the batteries with the + and – correctly matching the + and – inside the battery compartment.
– Dry batteries are not rechargeable.
– Do not use a combination of new and old batteries.
– Do not use different types of batteries.
– Current flows from batteries when you are not using them for a long time.
– Do not use leaking batteries.

If batteries are leaking

- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid gets into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

Specifications

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning system

Audio recording system
Rotary heads, PCM system
Quantization: Fs 32 kHz (12 bits, channels 1/2, channels 3/4), Fs 48 kHz (16 bits, channels 1/2)

Video signal
PAL colour, CCIR standards

Usable cassette
Mini DVCAM cassette with the DVCAM mark printed
Mini DV cassette with the Mini DV mark printed

Tape speed
DVCAM format:
Approx. 28.218 mm/s
DV format SP mode:
Approx. 18.812 mm/s

Recording/playback time (using cassette PDVM-40ME)
DVCAM format: 40 min.
DV format SP mode: 1 hour

Fastforward/rewind time (using cassette PDVM-40ME)
When using the battery pack:
Approx. 2 min. and 30 seconds
When using the AC power adaptor:
Approx. 1 min. and 45 seconds

Viewfinder
Electric viewfinder (B&W)

Image device
3.8 mm (1/4.7 type) 3 CCD (Charge Coupled Device)
Gross: Approx. 1 070 000 pixels
Effective (still):
Approx. 1 000 000 pixels
Effective (moving):
Approx. 690 000 pixels

Lens
Combined power zoom lens
Filter diameter: 37 mm
(1 1/2 in)
12× (Optical), 48× (Digital)
F 1.6 – 2.8

Focal length
3.6 – 43.2 mm (5/32 – 1 3/4 in.)
When converted to a 35 mm still camera
In CAMERA
4:3 mode :
49 – 588 mm (1 15/16 – 23 1/4 in.)
16:9 mode :
41 – 492 mm (1 5/8 – 19 3/8 in.)
In MEMORY
41 – 492 mm (1 5/8 – 19 3/8 in.)

Colour temperature
Auto, 💡Indoor (3 200 K),
☀Outdoor (5 800 K),

Minimum illumination
7 lx (lux) (F 1.6)

Input/Output connectors

S video input/output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced

Audio/Video input/output
AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative
327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5 mm)
Input impedance more than 47 kΩ (kilohms)

DV input/output
4-pin connector

Headphone jack
Stereo minijack (ø 3.5 mm)

LANC jack
Stereo mini-minijack (ø 2.5 mm)

USB jack
mini-B

MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kΩ (kilohms) (ø 3.5 mm)
Stereo type

INPUT1/INPUT2 connectors
XLR 3-pin, female, –60 dBu:
3 kilohms, +4 dBu: 10 kilohms
(0 dBu = 0.775 Vrms)

LCD screen

Picture
8.8 cm (3.5 type)
72.2 × 50.4 mm (2 7/8 × 2 in.)

Total dot number
246 400 (1 120 × 220)

General

Peak inrush current
Hot switching inrush current, measured in accordance with European standard EN55103-1:
6.3 A (230 V)

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)

Average power consumption (when using the battery pack)
During camera recording using LCD
6.3 W
Viewfinder
5.0 W

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)

Dimensions (Approx.)
93 × 99 × 202 mm
(3 3/4 × 4 × 8 in.) (w/h/d)

Mass (Approx.)
950 g (2 lb 1 oz)
main unit only
1.4 kg (3 lb)
including the battery pack NP-FM50, the XLR adaptor, the Microphone, cassette PDVM-40ME, the lens cap and shoulder strap

Supplied accessories
See page 14.

AC power adaptor

Power requirements
100 – 240 V AC, 50/60 Hz

Power consumption
23 W

Output voltage
DC OUT: 8.4 V, 1.5 A in the operating mode

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
–20°C to + 60°C
(–4°F to + 140°F)

Dimensions (approx.)
125 × 39 × 62 mm
(5 × 1 9/16 × 2 1/2 in.) (w/h/d)
excluding projecting parts

Mass (approx.)
280 g (9.8 oz)
excluding mains lead

Specifications

Battery pack

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
8.5 Wh (1 180 mAh)
Dimensions (approx.)
38.2 × 20.5 × 55.6 mm
(1 9/16 × 13/16 × 2 1/4 in.)
(w/h/d)
Mass (approx.)
76 g (2.7 oz)
Type
Lithium ion

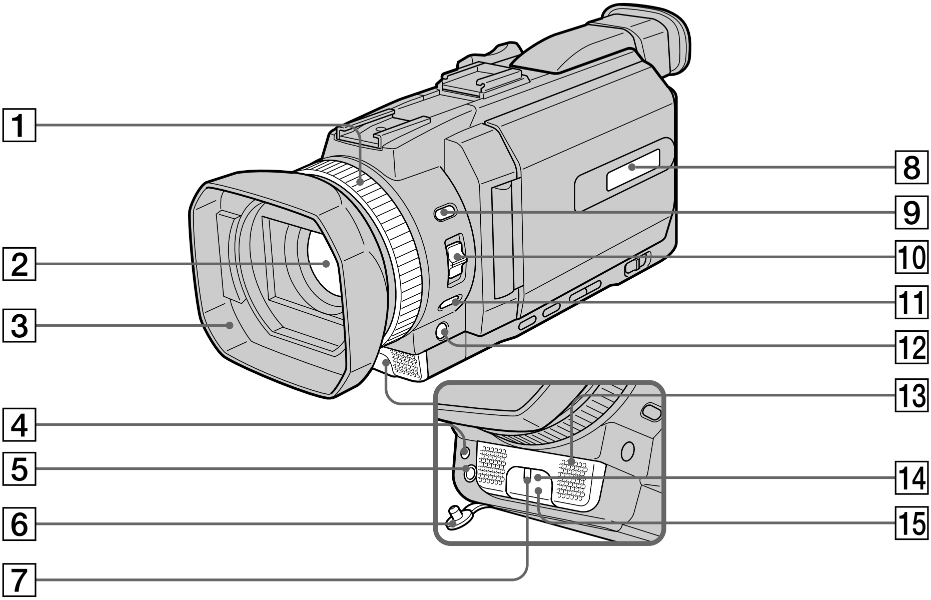
"Memory Stick"

Memory
Flash memory
8MB: MSA-8A
Operating voltage
2.7 – 3.6 V
Power consumption
Approx. 45 mA in the operating mode
Approx. 130 μA in the standby mode
Dimensions (approx.)
50 × 2.8 × 21.5 mm
(2 × 1/8 × 7/8 in.) (w/h/d)
Mass (approx.)
4 g (0.14 oz)

Design and specifications are subject to change without notice.

Identifying parts and controls

Camcorder



1 **Focus ring** (p. 75)

2 **Lens**

3 **Lens hood**

4 **HOLOGRAM AF emitter** (p. 148)

5 **MIC jack (PLUG IN POWER) (red)**

Connect an external microphone (optional). This jack also accepts a "plug-in-power" microphone.
Be sure to use the ECM-S80 for the external microphone.

6 **MIC jack cover**

7 **Camera recording lamp** (p. 25)

8 **Display window** (p. 16)

9 **INDEX button** (p. 86)

10 **FOCUS switch** (p. 75)

11 **PUSH AUTO button** (p. 75)

12 **FADER button *** (p. 56)

13 **Microphone**

14 **Infrared rays emitter** (p. 104)

15 **Remote sensor**

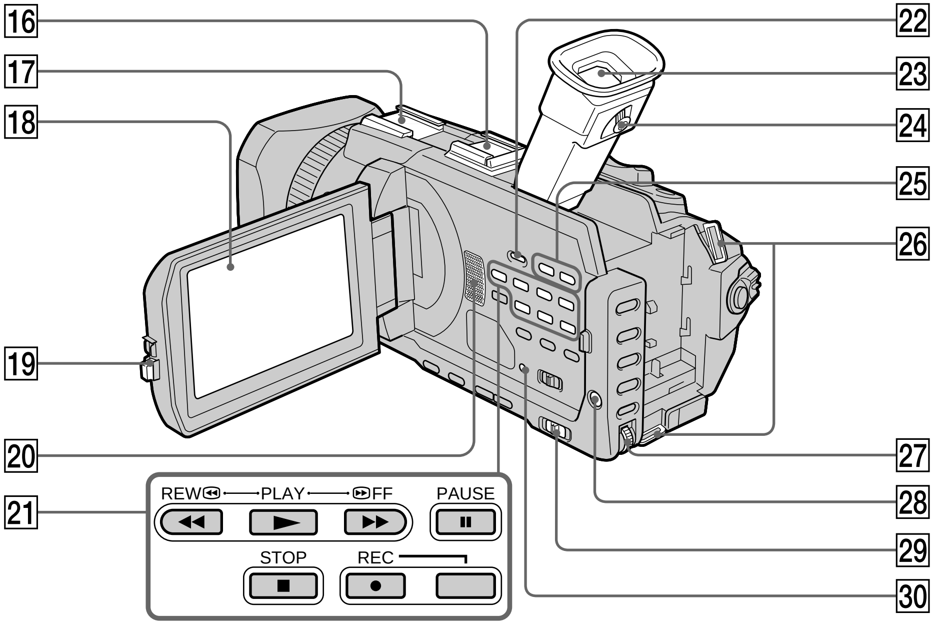
* The FADER button has a tactile dot for easy operation.

Removing the lens hood

To remove the lens hood to attach the optional wide teleconversion lens filter, etc., unscrew the lens hood counterclockwise. To attach the lens hood again, align the protrusions on the lens hood with the groove on the lens and screw the lens hood clockwise.

When using additional filters

Shading may occur on the recorded image due to the lens hood.



16 **Intelligent accessory shoe** (p. 29, 117, 188)

17 **Accessory shoe** (p. 29)

18 **LCD/Touch panel screen** (p. 23, 138)

19 **OPEN button**

20 **Speaker**

21 **Video control buttons ***

22 **DISPLAY/TOUCH PANEL button** (p. 43)

23 **Viewfinder** (p. 29)

24 **Viewfinder lens adjustment lever** (p. 29)

25 **VOLUME buttons **** (p. 41)

26 **Hooks for shoulder strap**

27 **SEL/PUSH EXEC dial**

28 **MENU button** (p. 212)

29 **AUTO LOCK selector** (p. 66)

30 **RESET button** (p. 230)

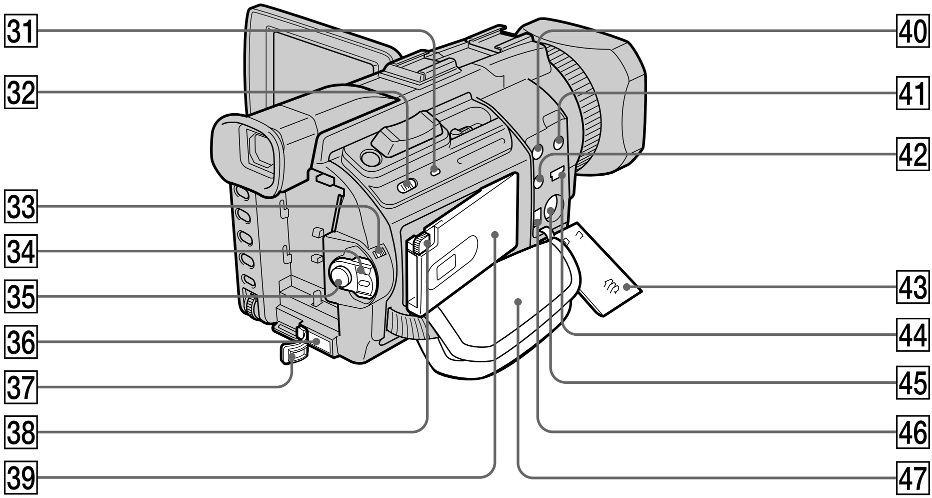
* The PLAY button of the Video control buttons has a raised tactile dot for easy operation.

** The + side of VOLUME buttons has a raised tactile dot for easy operation.

Intelligent
Accessory Shoe

Notes on the intelligent accessory shoe

- The intelligent accessory shoe supplies power to optional accessories such as a video light or microphone.
- The intelligent accessory shoe is linked to the POWER switch, allowing you to turn the power supplied by the shoe on and off. Refer to the operating instructions of the accessory for further information.
- The intelligent accessory shoe has a safety device for fixing the installed accessory securely. To connect an accessory, press down and push it to the end, and then tighten the screw.
- To remove an accessory, loosen the screw, and then press down and pull out the accessory.



31 **Access lamp**

32 **MEMORY OPEN button** (p. 137)

33 **LOCK switch** (p. 25)

34 **POWER switch**

35 **START/STOP button** (p. 25)

36 **DC IN jack** (p. 19)

37 **DC IN jack cover**

38 **MEMORY EJECT button** (p. 137)

39 **"Memory Stick" slot** (p. 137)

40 **AUDIO/VIDEO jack (yellow)** (p. 47, 98, 112, 153, 165, 211)

41 **🎧 (headphones) jack (green)**

When you use headphones, the speaker on your camcorder is silent.

42 **Ⓛ (LANC) jack (blue)**

43 **Jack cover** (p. 47)

44 **ψ (USB) jack** (p. 190)

45 **S VIDEO jack** (p. 47, 98, 112, 153, 165, 211)

46 **i DV Interface** (p. 100, 114, 154, 166, 211)

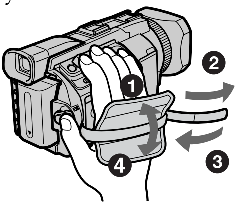
47 **Grip strap**

Ⓛ LANC

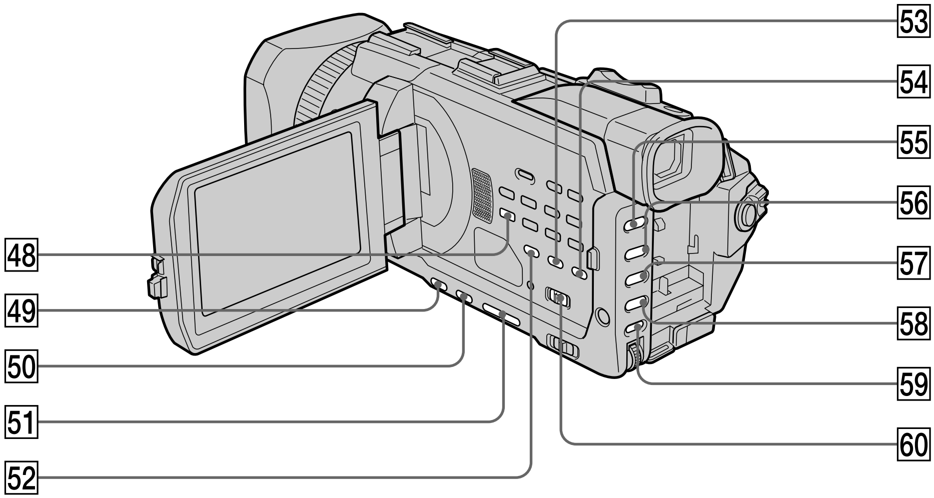
The Ⓛ LANC stands for Local Application Control Bus System. The Ⓛ LANC control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

Fastening the grip strap

Fasten the grip strap firmly.



Identifying parts and controls



48 **AUDIO DUB button** (p. 119)

49 **BACK LIGHT button** (p. 36)

50 **SPOT LIGHT button *** (p. 37)

51 **EDITSEARCH button *** (p. 39)

52 **TC/U-BIT button** (p. 125)

53 **BARS button** (p. 65)

54 **CUSTOM PRESET button** (p. 61)

55 **PROGRAM AE button** (p. 67)

56 **SHUTTER SPEED button *** (p. 69)

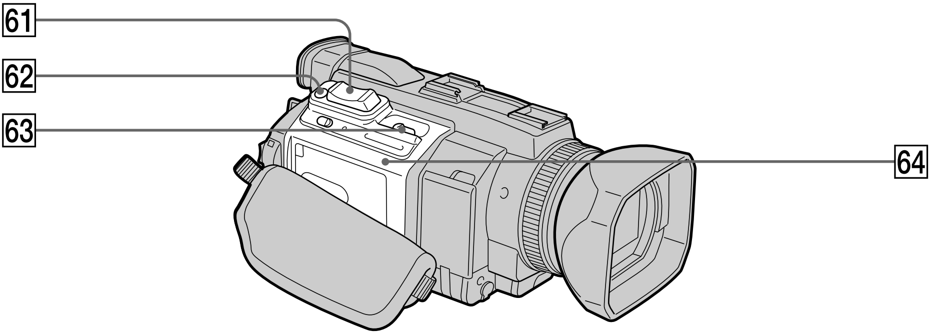
57 **WHT BAL button** (p. 71)

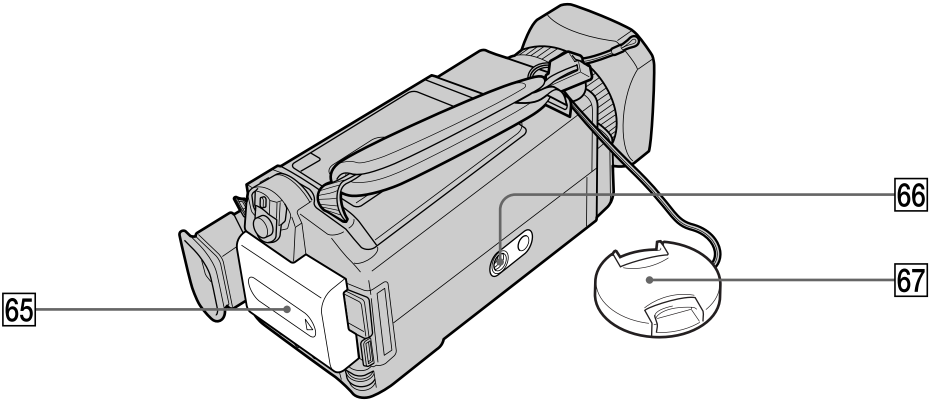
58 **EXPOSURE button** (p. 73)

59 **AUDIO LEVEL button** (p. 78)

60 **ZEBRA selector** (p. 64)

* Each of the buttons has a raised tactile dot. (The EDIT SEARCH button has it on the – ⊟ side.) Use it for easy operation.





61 **Power zoom lever** (p. 33, 96, 180)

62 **PHOTO button** (p. 48, 51, 144)

63 **┌ OPEN/ ⏏ EJECT lever** (p. 22)

64 **Cassette lid**

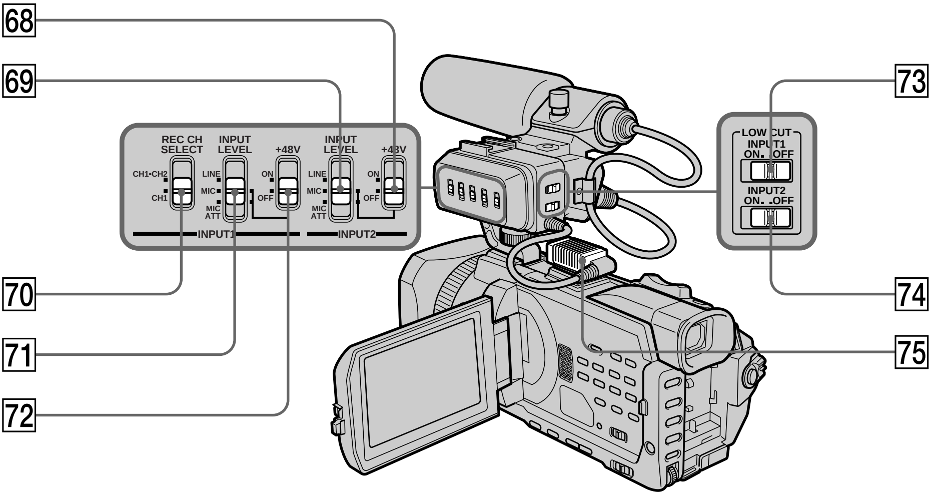
65 **Battery Pack** (p. 15)

66 **Tripod receptacle**

Make sure that the length of the tripod screw is less than 5.5 mm (7/32 inch). Otherwise, you cannot attach the tripod securely, and the screw may damage your camcorder.

67 **Lens cap** (p. 25)

XLR adaptor / Microphone


68
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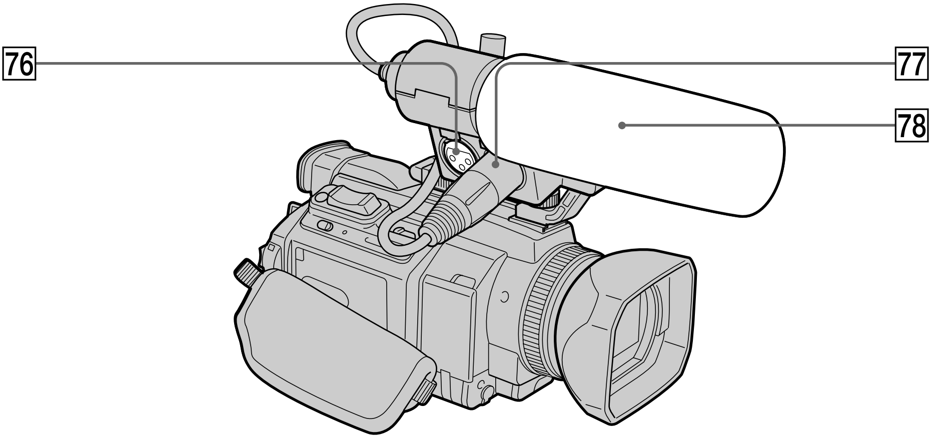
75
REC CH SELECT
INPUT LEVEL
+48V
INPUT LEVEL
+48V
CH1•CH2
CH1
LINE
MIC
MIC ATT
ON
OFF
LINE
MIC
MIC ATT
ON
OFF
INPUT1
INPUT2
LOW CUT
INPUT1
ON
OFF
INPUT2
ON
OFF



68 **INPUT2 +48 V switch** (p. 30)

69 **INPUT2 INPUT LEVEL selector** (p. 30)

70 **INPUT1 REC CH SELECT switch** (p. 30)

71 **INPUT1 INPUT LEVEL selector** (p.30)

72 **INPUT1 +48 V switch** (p. 30)

73 **INPUT1 LOW CUT switch** (p. 31)

74 **INPUT2 LOW CUT switch** (p. 31)

75 **HOT SHOE plug**

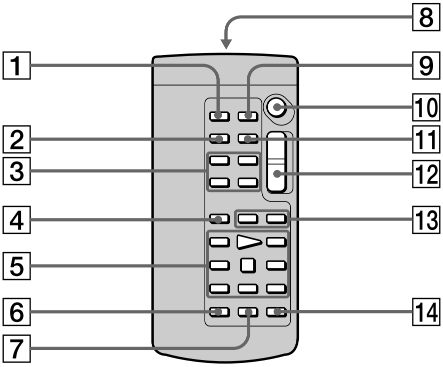
76 **INPUT2 connector** (p. 30, 78, 116)

77 **INPUT1 connector** (p. 30, 78, 116)

78 **Microphone** (p. 30)

Remote Commander

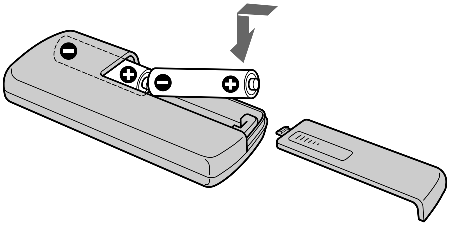
The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.



- 1 **PHOTO button** (p. 48, 51, 144)
- 2 **DISPLAY button** (p. 43)
- 3 **Memory control buttons**
- 4 **SEARCH MODE button** (p. 87, 89, 90, 92)
- 5 **Video control buttons** (p. 45)
- 6 **REC button**
- 7 **MARK button** (p. 109, 167)
- 8 **Transmitter**
  Point toward the remote sensor to control your camcorder after turning on your camcorder.
- 9 **ZERO SET MEMORY button**
  This button does not function.
- 10 **START/STOP button** (p. 25)
- 11 **DATA CODE button** (p. 43)
- 12 **Power zoom button** (p. 33)
- 13 **⏮/⏭ buttons** (p. 87, 89, 90, 92)
- 14 **AUDIO DUB button** (p. 119)

To prepare the Remote Commander

Insert two R6 (size AA) batteries by matching the + and – on the batteries to the + and – in the battery compartment.

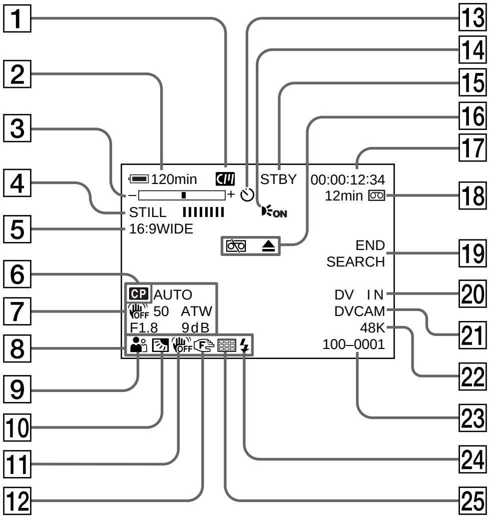


Notes on the Remote Commander

- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid erroneous remote control operation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Operation indicators

LCD screen and Viewfinder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22
23
24
25
120min
STBY
00:00:12:34
12min
STILL
16:9WIDE
ON
END
SEARCH
CP
AUTO
50
ATW
F1.8
9dB
OFF
DV IN
DVCAM
48K
100–0001

1 **Cassette memory** (p. 12, 236)

2 **Remaining battery time** (p. 35)

3 **Zoom** (p. 33)/
Exposure (p. 73)/
Data file name (p. 135)

4 **Digital effect** (p. 58, 95)/
MEMORY MIX (p. 155)/
FADER (p. 55)

5 **16:9WIDE** (p. 53)

6 **Custom preset** (p. 61)

7 **Data code** (p. 43)

8 **Volume** (p. 41)/
Date (p. 35)

9 **PROGRAM AE** (p. 66)

10 **Backlight** (p. 36)/
Spot light (p. 37)

11 **SteadyShot off** (p. 215)

12 **Manual focus/Infinity** (p. 75)

13 **Self-timer** (p. 38, 50, 150, 162)

14 **HOLOGRAM AF** (p. 148)

15 **STBY/REC** (p. 35)/
Video control mode (p. 45)/
Image size (p. 142)/
Image quality (p. 140)

16 **Warning** (p. 232)

17 **Time code** (p. 121)/
User bits (p. 124)/
Self-diagnosis (p. 231)/
Tape photo (p. 51)/
Memory photo (p. 48, 144)/
Image number (p. 173)

18 **Remaining tape** (p. 35)/
Memory playback (p. 173)

19 **END SEARCH** (p. 39)

20 **A/V → DV** (p. 211)/
DV IN (p. 115)

21 **DVCAM format/DV format SP mode** (p. 234)

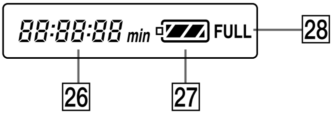
22 **Audio mode** (p. 220)

23 **Data file name** (p. 135)/
Time (p. 35)/
Audio input level (p. 78)

24 **Flash** (p. 214)
This indicator appears when you use the video flash light (optional).

25 **Continuous photo recording** (p. 146)

Display window



26 **Remaining battery time indicator** (p. 16)**/**
Time code indicator* (p. 121)**/**
Image number (p. 173)**/**
Self-diagnosis indicator (p. 231)

27 **Remaining battery time** (p. 16)

28 **FULL charge indicator** (p. 16)

* The time code is displayed even if you switch the time code to user bits.

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SERVICE MANUAL

Ver 1.1 2003. 01

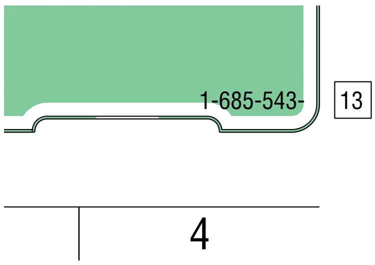
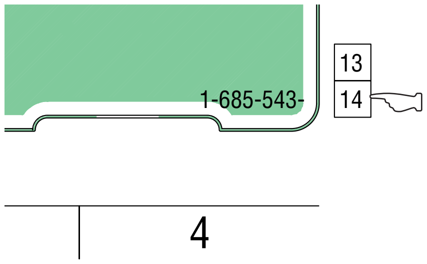
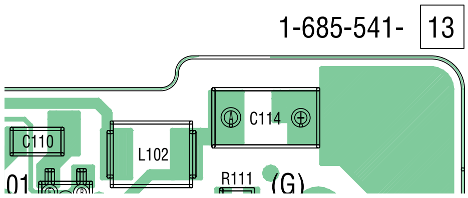
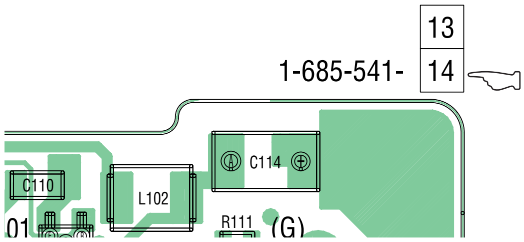
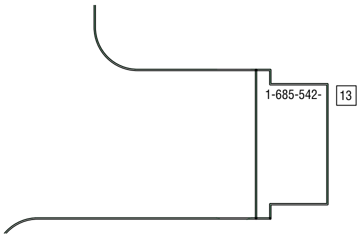
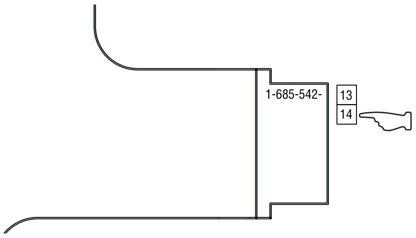
SUPPLEMENT-1

File this supplement-1 with the Service Manual.
(PV02-009)

Subject:
- Addtion of Chinese Model
- Addtion of Supplied parts
- Change of Repair parts number
  (SE-132 BOARD, CD-389 BOARD, JK-222 BOARD)

4-3. PRINTED WIRING BOARDS

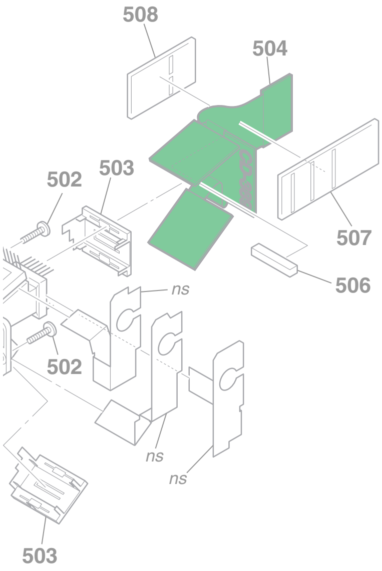
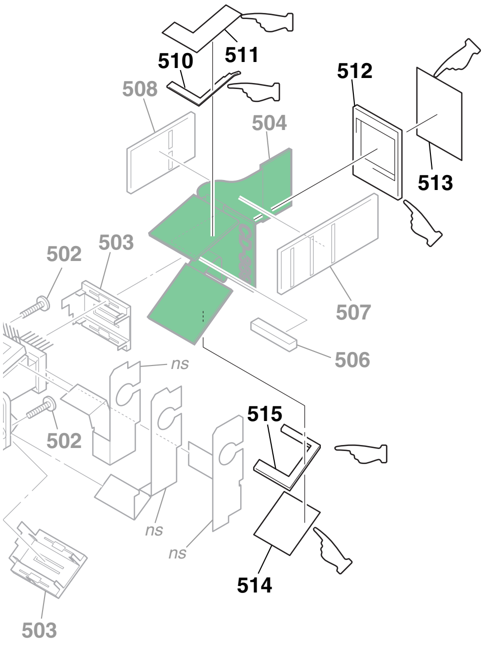
☞ : Added portion.

Page	Before change	After change
Original 4-89	**SE-132 BOARD**  1-685-543- 13 4	 1-685-543- 13 14 4
Original 4-91	**CD-389 BOARD**  1-685-541- 13 C110 L102 C114 R111 (G) 01	 13 1-685-541- 14 C110 L102 C114 R111 (G) 01
Original 4-99	**JK-222 BOARD** 	 1-685-542- 13 14

SECTION 6. REPAIR PARTS LIST

5-1. EXPLODED VIEWS

☞ : Added portion.

Page	Before change	After change
Original 5-11	**5-1-11. LENS BLOCK**  508 504 503 502 507 506 ns 502 ns ns 503	 510 511 512 508 504 513 502 503 507 506 ns 515 502 ns ns 514 503
	Ref. No. Part No. Description Remarks 509 3-709-679-01 MOTOR, ZOOM	Ref. No. Part No. Description Remarks 509 3-709-679-01 MOTOR, ZOOM 510 3-078-735-02 ANTI RADIATION SHEET 1S ☞ 511 3-078-391-02 ANTI RADIATION SHEET 1 ☞ 512 3-078-737-02 ANTI RADIATION SHEET 3S ☞ 513 3-078-393-02 ANTI RADIATION SHEET 3 ☞ 514 3-078-392-02 ANTI RADIATION SHEET 2 ☞ 515 3-078-736-01 ANTI RADIATION SHEET 2S ☞

6-2. ELECTRICAL PARTS LIST

☞ : Added portion.

Page: Original 5-37

Before change

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES ************	
⚠	1-475-599-14	ADAPTOR, AC (AC-L10A) (PDX10P)	
⚠	1-475-599-45	ADAPTOR, AC (AC-L10A) (PDX10)	
	1-475-950-53	REMOTE COMMANDER (RMT-811)	
	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
*⚠	1-575-131-11	CORD, POWER (PDX10P)	
⚠	1-790-107-22	CORD, POWER (PDX10)	
	1-757-294-11	CORD, CONNECTION (USB 5P)	
	1-824-097-11	CORD, CONNECTION (AV MULCH) (1.5m)	
	3-053-056-01	LID, BATTERY CASE (FOR RMT-811)	
	3-072-414-01	SPVD-008 (USB DRIVER CD-ROM)	(PDX10P)
	3-072-654-01	SPVD-008 (I) (USB DRIVER CD-ROM)	(PDX10)
	3-073-861-01	CLOTH (TL), CLEANING	
	3-077-115-11	MANUAL, INSTRUCTION (ENGLISH)	(PDX10)
	3-077-115-21	MANUAL, INSTRUCTION (FRENCH)	(PDX10:Canadian)
	3-077-115-31	MANUAL, INSTRUCTION (ENGLISH)	(PDX10P)
	3-077-115-41	MANUAL, INSTRUCTION (FRENCH)	(PDX10P)
	3-077-115-51	MANUAL, INSTRUCTION (GERMAN)	(PDX10P)
	3-077-115-61	MANUAL, INSTRUCTION (ITALIAN)	(PDX10P)
	3-077-115-71	MANUAL, INSTRUCTION (SPANISH)	(PDX10P)
	3-987-015-01	BELT (S), SHOULDER	
	8-814-298-90	MICROPHONE ECM-NV1	
	A-7013-029-A	XLR BLOCK ASSY	
	A-7024-735-A	MEMORY STICK (MSA-8A)	
	X-3952-595-1	CAP ASSY, LENS	
	X-3952-789-1	HOOD (WIDE) ASSY	
		NP-FM50 BATTERY PACK (NOT SUPPLIED)	

After change

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES ************	
⚠	1-475-599-14	ADAPTOR, AC	(AC-L10A) (PDX10P:AEP/UK/E)
⚠	1-475-599-45	ADAPTOR, AC (AC-L10A) (PDX10)	
⚠	1-475-599-82	ADAPTOR, AC (AC-L10A) (PDX10P:CH)	
	1-475-950-53	REMOTE COMMANDER (RMT-811)	
	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
*⚠	1-575-131-11	CORD, POWER (PDX10P:AEP/UK/E)	
⚠	1-782-476-11	CORD, POWER (PDX10P:CH)	
⚠	1-790-107-22	CORD, POWER (PDX10)	
	1-757-294-11	CORD, CONNECTION (USB 5P)	
	1-824-097-11	CORD, CONNECTION (AV MULCH) (1.5m)	
	3-053-056-01	LID, BATTERY CASE (FOR RMT-811)	
	3-072-414-01	SPVD-008 (USB DRIVER CD-ROM)	(PDX10P)
	3-072-654-01	SPVD-008 (I) (USB DRIVER CD-ROM)	(PDX10)
	3-073-861-01	CLOTH (TL), CLEANING	
	3-077-115-11	MANUAL, INSTRUCTION (ENGLISH)	(PDX10)
	3-077-115-21	MANUAL, INSTRUCTION (FRENCH)	(PDX10:Canadian)
	3-077-115-31	MANUAL, INSTRUCTION (ENGLISH)	(PDX10P)
	3-077-115-41	MANUAL, INSTRUCTION (FRENCH)	(PDX10P)
	3-077-115-51	MANUAL, INSTRUCTION (GERMAN)	(PDX10P)
	3-077-115-61	MANUAL, INSTRUCTION (ITALIAN)	(PDX10P)
	3-077-115-71	MANUAL, INSTRUCTION (SPANISH)	(PDX10P)
	3-082-345-01	MANUAL, INSTRUCTION (CHINESE)	(PDX10P)
	3-987-015-01	BELT (S), SHOULDER	
	8-814-298-90	MICROPHONE ECM-NV1	
	A-7013-029-A	XLR BLOCK ASSY	
	A-7024-735-A	MEMORY STICK (MSA-8A)	
	X-3952-595-1	CAP ASSY, LENS	
	X-3952-789-1	HOOD (WIDE) ASSY	
		NP-FM50 BATTERY PACK (NOT SUPPLIED)	

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SERVICE MANUAL

Ver 1.5 2004.07

SUPPLEMENT-2

File this supplement-2 with the service manual.
(PV04-010)

- Correction of Self-diagnosis code table
- Addition of Service part

SECTION 1 SERVICE NOTE
1-5. SELF-DIAGNOSIS FUNCTION
1-5-4. Self-diagnosis Code Table

☞ : Changed portion

Page 1-5

Before change

Self-diagnosis Code			Symptom/State
Repaired by:	Block Function	Detailed Code	
C	3 1	1 0	LOAD direction loading motor time-out.
C	3 1	1 1	UNLOAD direction loading motor time-out.

After change

Self-diagnosis Code			Symptom/State
Repaired by:	Block Function	Detailed Code	
C	3 2	1 0	LOAD direction loading motor time-out.
C	3 2	1 1	UNLOAD direction loading motor time-out.

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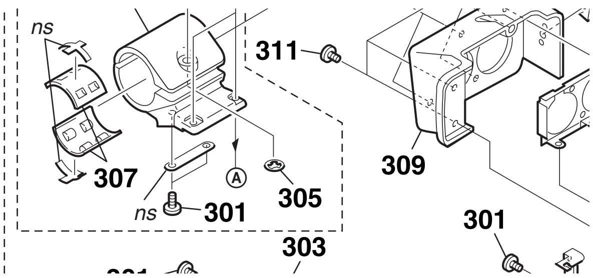
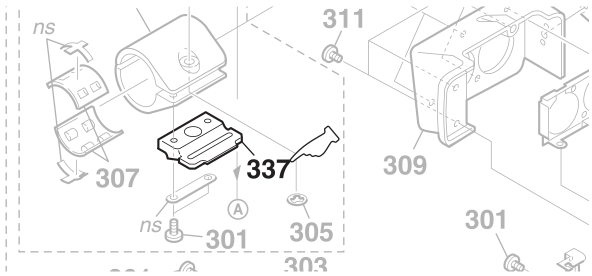
SECTION 5 REPAIR PARTS LIST

5-1. EXPLODED VIEWS

☞ : Added portion

Page	Before change	After change
5-7	**5-1-7. XLR BLOCK**  ns 311 307 A 305 309 ns 301 301 303 Ref. No. Part No. Description ——— ——— ———	 ns 311 307 337 309 A 305 ns 301 301 303 Ref. No. Part No. Description 337 3-060-810-01 BASE, MICROPHONE HOLDER ☜

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SERVICE MANUAL

Ver 1.6 2005. 07

SUPPLEMENT-3

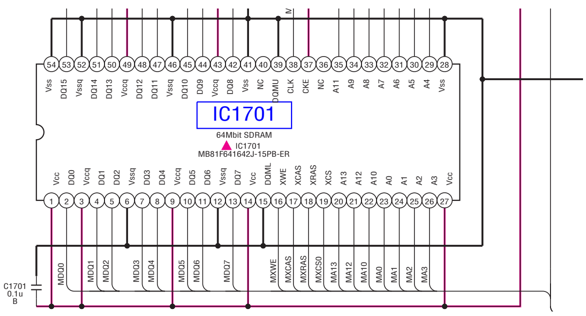
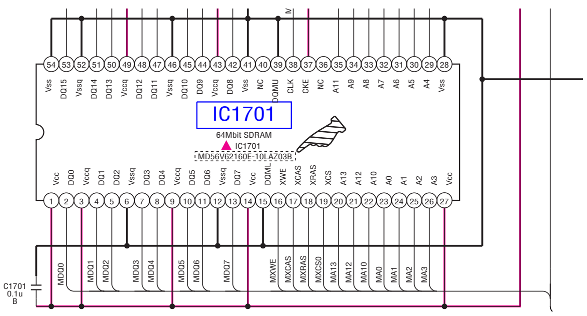
File this supplement-3 with the service manual.

- Change of schematic diagrams
- Change of electrical parts list

SECTION 4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS

: Changed portion

Page	Before change	After change
4-37	**VC-318 BOARD (4/17)**  IC1701 64Mbit SDRAM IC1701 MB81F641642J-15PB-ER C1701 0.1u B	 IC1701 64Mbit SDRAM IC1701 MD56V62160E-10LAZ03B C1701 0.1u B

5. REPAIR PARTS LIST

5-1. ELECTRICAL PARTS LIST

: Changed portion

Page	Before change			After change		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-30		A-7078-397-A	VC-318 (UDN) BOARD, COMPLETE (SERVICE) (PDX10)		A-7078-397-A	VC-318 (UDN) BOARD, COMPLETE (SERVICE) (PDX10)
			************************************			************************************
		A-7078-400-A	VC-318 (UDP) BOARD, COMPLETE (SERVICE) (PDX10P)		A-7078-400-A	VC-318 (UDP) BOARD, COMPLETE (SERVICE) (PDX10P)
			************************************			************************************
			< IC >			< IC >
	IC1701	8-759-829-96	IC MB81F641642J-15PB-ER	IC1701	6-702-058-01	IC MD56V62160E-10LAZ03B

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SERVICE MANUAL

Ver 1.7 2005. 09

SUPPLEMENT-4

File this supplement-3 with the service manual.
(PV05-046)

- Change of repair parts list

5. REPAIR PARTS LIST

5-2. ELECTRICAL PARTS LIST

☞ : Changed portion

Page	Before change			After change		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-23		A-7078-344-A	FP-497 BOARD, COMPLETE		A-7078-344-A	FP-497 BOARD, COMPLETE
			**********************			**********************
			< IC >			< IC >
	D001	8-719-080-62	DIODE CL-190HBF-X-T	D001	6-501-052-02 ☞	DIODE CL-197HB1-D-T ☞

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SERVICE MANUAL

Ver 1.8 2005. 11

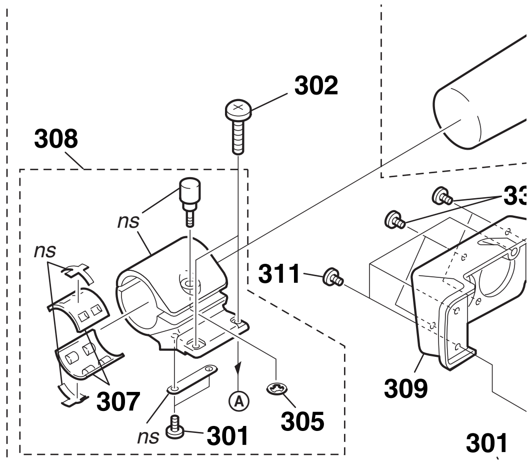
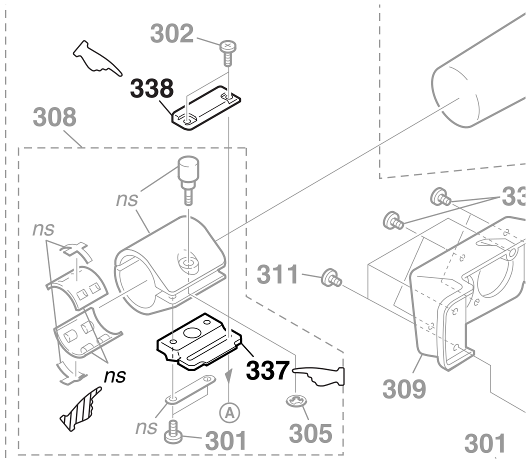
SUPPLEMENT-5

File this supplement-5 with the service manual.
(PV05-067)

- Change of repair parts list

5. REPAIR PARTS LIST
5-1. EXPLODED VIEWS

▨☞ : Changed portion ☞ : Added portion ☛ : Deleted portion

Page	Before change			After change		
	5-1-7. XLR BLOCK					
5-7	 302 308 ns ns 311 33 307 ns A 301 305 309 301			 302 338 308 ns ns 311 33 337 ns ns A 301 305 309 301		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	307	3-608-303-01	RUBBER	—	—	— ☛
	308	X-3950-604-1	HOLDER ASSY, MICROPHONE	308	X-3950-604-5 ▨☞	HOLDER ASSY, MICROPHONE
	—	—	—	337	3-060-810-01	BASE, MICROPHONE HOLDER ☞
	—	—	—	338	3-064-629-01	RETAINER (UPPER) D, HOLDER

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9-929-990-85

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Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2002.08	Official Release	—	—
1.1	2003.01	Supplement-1	• Addtion of Chinese Model. • Addtion of Supplied parts. • Change of Repair parts number. • Addtion of Supplied parts. (SE-132 BOARD, CD-389 BOARD, JK-222 BOARD)	No
1.2	2003.05	Correction-1	Change of the parts S.M. correction: Page 4-22, 4-76, 4-78, 5-17, 5-18, 5-26	Yes
1.3	2003.06	Correction-2	Correction of Parts No. S.M. correction: Page 5-30	Yes
1.4	2003.07	Correction-3	Correction of Service Tool S.M. correction: Page 6-4, 6-7	Yes
1.5	2004.07	Supplement-2	• Correction of Self-diagnosis code table • Addition of Service part S.M. correction: Page 1-5	Yes
1.6	2005.07	Supplement-3	• Change of schematic diagrams • Change of electrical parts list	No
1.7	2005.09	Supplement-4 (PV05-046)	• Change of repair parts list	No
1.8	2005.11	Supplement-5 (PV05-067)	• Change of repair parts list S.M. correction: Page 5-7	Yes